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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 85, No. 5 MAY, 1932 Member A.B.C.-A.B.P.

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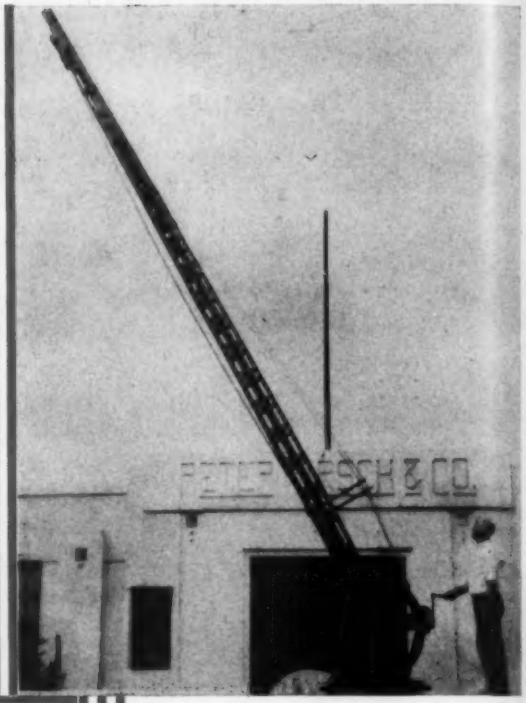

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6. Volunteer fire departments and city ladder truck companies which are undermanned, especially during this period of municipal economy, will find this device of great advantage in raising ladders at a fire, which would be impossible in the event several firemen are not available under the old method of raising the ladder.

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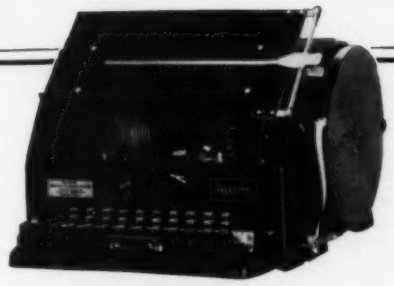

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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

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Are You Heading for a Fall?

● *"For the want of a nail*
the shoe was lost,
For the want of a shoe
the horse was lost,
For the want of a horse,
the rider was lost,
For the want of a rider,
the battle was lost."

● *For the want of a nozzle*
the hose was lost,
For the want of a hose,
the pumper was lost,
For the want of a pumper,
the town was lost.

● There's more truth than poetry in them thar lines. The difference between a small blaze and a conflagration is usually nothing more than the difference between adequate and inadequate fire-fighting facilities. With fire losses showing a decided increase everywhere these days, what greater mistake can a city or town make than to delay the purchase of needed fire equipment?

The Publishers

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MEMBER
Audit Bureau of Circulations
Associated Business Papers

Published the tenth of each month by
CASE - SHEPPERD - MANN PUBLISHING CORPORATION
Also publishers of "Water Works Engineering," and "Municipal Sanitation"
General Offices—24 West 40th St., New York

SUBSCRIPTION PRICE
U. S., $2 a year; Canada, $2.50
Foreign, $3; Single copies, 25c

KARL M. MANN, President
I. HERBERT CASE, Vice-Pres. and General Manager
W. J. GIBSON, Advertising Manager
H. S. ESSEX, Production Manager

CHICAGO: 6 N. Michigan Ave.—W. S. CLEVENGER, L. M. ROCHE; SAN FRANCISCO: 1045 Sansome St.—C. H. WOOLLEY, W. V. WOEHLEE.

Entered as second class matter April 15, 1929, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

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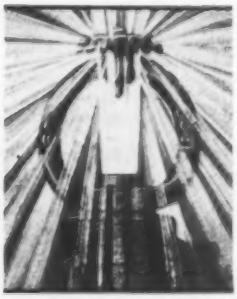

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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 85 MAY, 1932 Number 5

With the Editor

Is It the Beginning?

For each of the eight months comprising the period ending February 29, the national fire loss was less than for the corresponding month a year earlier.

But March showed an astounding change. Fire losses in the United States for March amount to $49,189,-124, according to the monthly report of the National Board of Fire Underwriters. This is an increase of $5,114,762, or 11%, over March 1931.

An increasing fire loss, due to the growing severity of the depression, was anticipated, for the history of business depressions has indicated that incendiary fire losses increase as business decreases.

While a gain in fire loss was expected, an increment of 11.6% was far greater than anticipated.

There was some hope that a serious increase of the number of incendiary fires might be checked through greater vigilance on the part of Fire Departments, as well as insurance companies, but if March is an indication of the trend, the country is on the verge of a very serious situation.

A great number of cities have adopted programs for curtailing the effectiveness of their fire fighting forces, either through reduction in personnel, adding no new equipment, or furnishing no equipment to replace present obsolete and ancient machines. Unfortunately, if a lesson is to be learned from the present trend, it will probably be learned only after tremendous fire losses have been experienced, for it is next to impossible to convince the average city official that his department, if in a weakened condition, may be unable to cope with any very large fire which may occur. Usually it is only after a series of big fires that a city administration can be spurred to strengthen its fire defences.

Should April show a further increase in loss, it will be convincing evidence that the trend is upward and that heroic measures must be adopted to prevent growth of fires of suspicious origin. An equally important step will be to bring the departments up to their full strength, and make sure that sufficient apparatus is provided.

Curtailment in Fire Department expenses at this time is like cutting the Army and Navy budget after war is declared.

Fred Sheppard

Drills and Practice in the Use of Tools Important in

The Training of Firemen

By G. R. HAGMAN,
Captain, Fire Department,
Rockford, Ill.

GENERAL PARKER, Commanding the 6th Corps area, once said that discipline was nothing more or less than an intense desire to obey. This definition as applied to us can be stated to be that spirit of self-sacrifice which is developed in men, through training, which enables them to co-ordinate with each other under the direction of one head.

Discipline can only be obtained in an organized force, such as ours, by the complete understanding, between officers and men, of the duties which are required of them to carry out their mission successfully, namely the combating of fire. Such an understanding can only be obtained by the proper training of men and for that reason the problems of discipline will be largely solved by the carrying out of an intelligent, intensive, training schedule.

In talking about the developments in the training of men for the fire service I cannot help but feel a bit of pride when I think of the progress that has been made in the past ten years and know that I have had a small part in the advancement of this program.

Effect of Training on Science of Fire Fighting

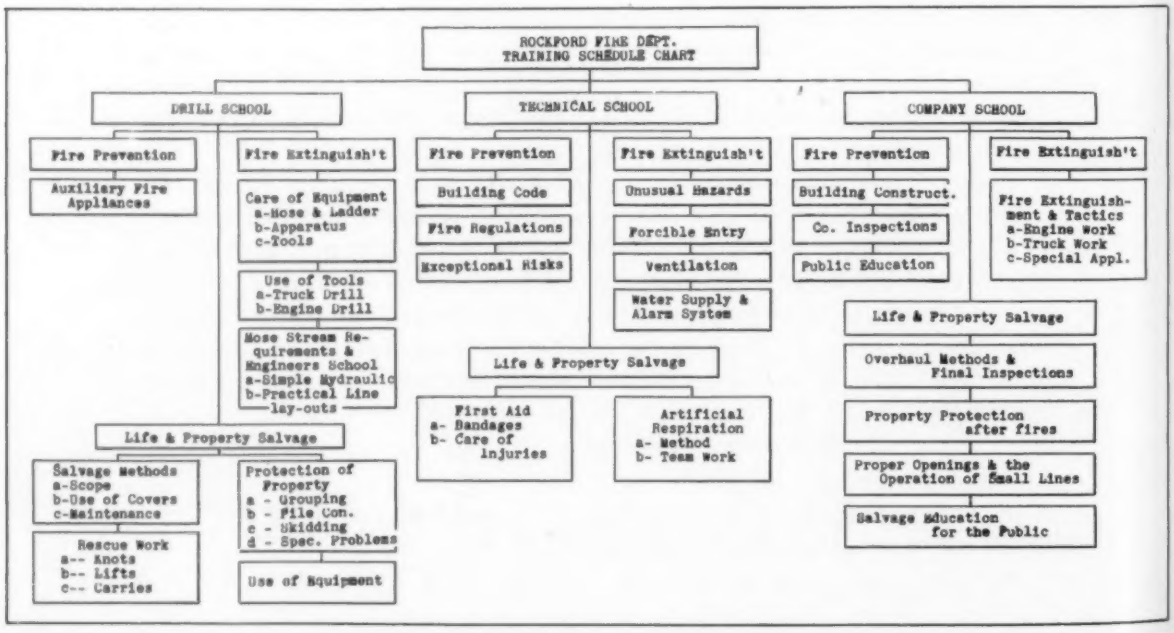
It has not been so many years since an Ex-Chief made the remark that all that was needed in the Fire Department was a strong back and a weak mind. Since then we have gone far to develop what was then an exciting job for the mentally sick, lame, and lazy, into a science which will take its place among the professions of the world.

To the development of this professional advancement the training of firemen has an important part. The term fire fighting has extended its scope beyond the accepted meaning of fire extinguishment and has come more and more to mean the act of protection of life and property under the provisions of a three-fold plan, which includes fire prevention, fire extinguishment, life and property salvage.

Training Must Be Practical

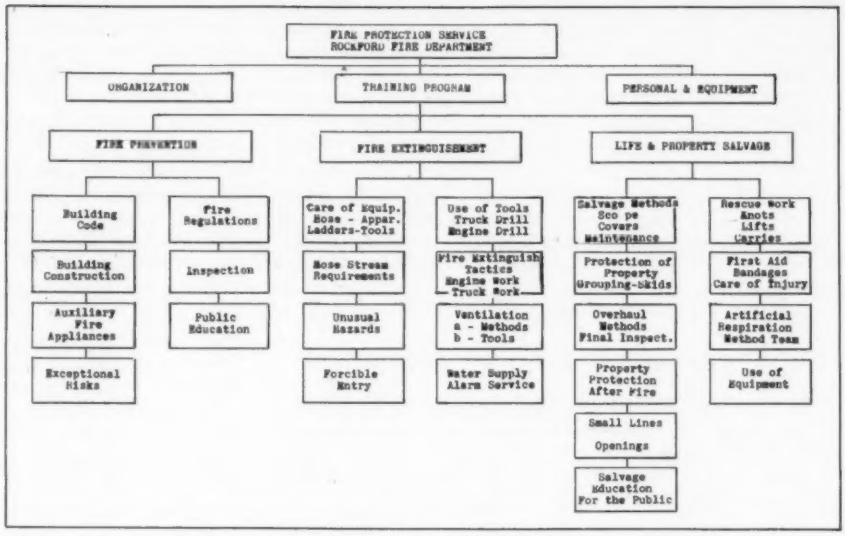
In order to educate men to the point where this three-fold plan can operate to the best advantage, some form of training must be adopted. It should be of a type which will develop to the fullest extent the mental and physical qualities of the men and at the same time direct their efforts in channels which will bring out co-ordination between men and between units of the department.

Fire fighting is a practical science and the training of men for the service should be practical in the highest degree. The training schedule should be arranged to cover the problem of the city or town of which the department is a part, and all of the conditions contained in this schedule should be those which are encountered in fighting fires in that particular locality. Let me illustrate that statement a little more clearly. Suppose your department has ladder equipment sufficient to reach



Training Schedule Chart, Rockford Fire Department

the roof of a two-story building; say twenty-five or thirty-foot ladders. Do you think that it would be of any benefit for you to include in your drill, a ladder problem calling for the use of a forty-five-foot extension ladder? Or if the highest building in your town is four stories in height do you think it advisable to include line problems based on fires in the twentieth floor? No. Make your training schedule fit the needs of your city. Make it practical by basing the problem on conditions which your men encounter at fires and include in it drills that tax the mental as well as the physical qualities of your men. Let us consider here two charts which I have drawn up to show the development of the training schedule idea. It will be noticed that in the chart "Fire Protection Service," the Fire Department is placed in the square, with Fire Protection Service, as the most important factor. While there are others which can be placed in this category, the department is, for us, the important one and we shall consider it alone.



Fire Protection Service Chart, Rockford Fire Department

For administrative purposes the organization of the department is divided up into three phases or branches for study, namely: Organization, Training Program, Personnel and Equipment. As we are interested only in training we will disregard the other two and follow the lines of the training program, as I have drawn them.

It will be seen, following these lines, that the training program is subdivided into three separate groups of study or is conducted under the threefold plan that I have mentioned. These groups are: Fire Prevention, Fire Extinguishment, Life and Property Salvage. Under each group in the chart will be seen a number of branch-divisions, each representing a subject which should be studied by men in preparing for success in their work in the department.

How Training Schedule Can Be Placed in Active Use

Now how can we place such a training schedule into active use? In the average department there should be three schools namely, the department drill school, the school for technical education, and the company drill schools. Each of these should have for their scope subjects which the equipment, assigned to them, and the training, of their instructors, has best fitted them for. In the drill school we should have the following subjects:

Taken from the fire prevention branch:
- Auxiliary fire appliances.

From Fire Extinguishment:
- The care of equipment including:
  - a Care of hose and ladder equipment.
  - b The care of apparatus.
  - c The care of tools.
- The use of tools including:
  - a Truck drill.
  - b Engine drill.
- Hose stream requirements and the engineers' school:
  - a Simple hydraulics.
  - b Practical line layouts.

From life and property salvage:
- Salvage methods including:
  - a Scope.
  - b Use of covers.
  - c Maintenance.
- Protection of property including:
  - a Methods of grouping.
  - b Methods of constructing piles and the placement of furniture.
  - c Methods of skidding.
  - d Special covering problem.
- Rescue work including:
  - a Knots.
  - b Lifts.
  - c Carries.
- Use of Equipment.

Taken from the technical school we should find the following subjects:

Taken from fire prevention:
- Building code.
- Fire regulations.
- Exceptional risks.

From fire extinguishment:
- Unusual fire hazards.
- Forceable entry.
- Ventilation.
- Water supply and fire alarm service.

From life and property salvage:
- First aid including:
  - a Bandages.
  - b Care of the injured.
- Artificial respiration including:
  - a Method.
  - b Teamwork.

In the company school should be placed the following subjects:

From the fire prevention group the subjects of:
- Building construction.
- Company inspection.
- Public educational contacts.

From fire extinguishment:
- Fire extinguishment and fire tactics including:
  - a Engine work.
  - b Truck work.
  - c Special appliances.

From life and property salvage:
- Overhaul methods and final inspections.
- Property protection after fires.
- Easily repaired openings and the operation of small lines.
- Salvage education for the public.

Methods of Instruction

Included in the company school should be a program for instruction in the study of streets, hydrants, boxes, rules and regulations, etc. In organizing the school system the drill school should be placed in the hands of competent instructors and should be located so that all of the tools and apparatus necessary will be available.

The drills and evolutions should be of a type that will conform to the problems which confront the company commander in actual fire fighting and should be based on known hazards. The drill should be carried out with a view of obtaining teamwork, individual training, and standardization. Drills for speed do not, except in unusual circumstances, develop these things to a very high degree.

When it is possible, instructions should be based on the method of explanation, demonstration, and imitation. That is the instructor explains what he wishes the company to do; he demonstrates it, showing each man his part, and the company imitates his work in the performance of the drill.

Instructors Must Know Their Subjects

The technical school should be conducted by a group of men who are especially fitted to instruct in the subjects to which they have been assigned. They should be used at the drill school or at the company headquarters during the company drill periods.

In the company school the company commanders are the instructors. Their instruction should be supervised by the Chiefs of the department and should be co-ordinated so that all of the instructing officers are instructing alike.

As a closing factor let us consider the elements of drill instruction. I shall not go into the detail work of instruction in each of the subjects represented on the chart, but I do wish to cover one or two of them to illustrate the idea.

The Care of Hose

In the care of hose we teach that there are four general points or subdivisions which men should thoroughly understand. They are the care of hose when not in use, changing of hose on the apparatus, drying hose after use, and the care of hose at fires. In our instruction we impress the fact that hose is a very necessary and very expensive article of Fire Department use and in order to receive the maximum efficiency from it no efforts should be spared to keep it in the best of condition. More hose has been ruined by improper care than by mechanical injury at fires. There are so many things that can happen to destroy hose stored in the house and on the apparatus, all of which can be prevented if men will only exercise just a little care.

Chemical reactions in hose that has been stored wet usually result in the rotting of the jacket from mildew. Rubber linings are constantly in a state of deterioration. Hose that is allowed to remain in one position for a long period of time hardens in this position and when it is moved the linings crack and a leak results. Hose carried on the apparatus without being moved or replaced will harden at the bends in the load with the result that when it is put into use more water comes out through the jackets than through the nozzle.

Hose should be dried after use and stored in a well ventilated place. At frequent intervals all the hose, whether in storage, or on the apparatus, should be flushed out to rejuvenate the rubber. After this is completed the outer jacket should be thoroughly dried before the hose is again stored.

On the apparatus hose changes should be made periodically. This will prevent the setting of the bends in the load. If the load should get wet from any cause it should be changed and dry hose substituted. This will go a long ways to prevent mildew from forming in the loads. In loading the hose box, care should be taken not to pack the hose so tight that the bends put an undue strain on the jacket. It is possible to make these bends so sharp that the strain on the jacket will result in the weakening of the fabric, with the corresponding loss of strength in the hose.

Where the equipment is available, hose should be dried in a tower. If it is not possible to have a tower, a rack of some sort should be made to support the hose while drying. Such a rack can be built with two decks so that it only need be about twenty-five feet in length and should be equipped with casters so that it can be moved around at will.

At the scene of a fire, hose is subject to injury from cuts, abrasions from chafing caused by vibration, injury from traffic passing over the lines, heat, exposure to grease and oils, and what not. Of course we realize that it is very hard to protect hose at fires, but we feel that a reasonable consideration should be given it. After fires each length of hose that has been used, should be inspected thoroughly and those lengths which are suspected of being defective should be laid aside for testing.

In handling frozen hose care should be taken to prevent the breaking of the jacket. No attempt should be made to roll hose that is frozen or to bend it sharply in any way. It should be loaded with extreme care, taken back to the house, thawed out, and then dried before it is rolled up for storage or use.

Avoid Contact of Hose With Gasoline or Chemicals

One point I wish to bring out very strongly, and that is the danger of charging chemical tanks over the hose load. One drop of acid can destroy a length of hose costing forty dollars or more and often the damage is not noticed until the hose is in use and the line breaks. Another thing which is dangerous from the standpoint of hose destruction is gasoline. Gasoline spilled over a length of hose acts as a solvent of the rubber lining, with the result that the lining gives away and the length is ruined.

Men should be given a very thorough training in the care of hose and should be made to understand their responsibility regarding it thoroughly. A determined effort on the part of the instructor in impressing these facts usually results in a saving of many dollars for the department.

Care of Tools

In the care of tools we lay a special stress on their proper use. We divide them into four general types, namely, forceable entry tools, fire extinguishing equipment, rescue tools, and salvage equipment. We impress that each tool is provided for a certain type of work and that they are to be used for these purposes. In many instances the uses of certain tools overlap and the men are instructed to use their judgment as to which tool may be used to the best advantage. However the day of the fireman who used his axe for everything from lock "busting" to cutting cake has passed, and we are quite severe with the man who misuses a tool.

In the house we require that all tools be kept clean and free from rust. Each man is instructed in the methods of keeping tools in the proper condition. In some instances, as in the case of special equipment, such as the gas masks or the inhalator, we give men, who are interested, more detailed instruction and try to have the responsibility of the maintenance of this equipment assigned to them. Of course all men are trained in the use of this special equipment but in making one man responsible for the care of it we find that the equipment

is usually in better condition and the man often develops himself into an expert instructor in its use.

Nozzles Should Be Kept Free

After all fires we require that the tools which have been used be cleaned and oiled if necessary. At this time they are inspected to make sure that they have remained in the proper condition, and repairs are made if needed. One point I wish to bring out is in the care of nozzle tips. Some time ago I visited an engine house in another city. In looking over the apparatus I saw a spanner wrench which had been placed in the tip of one of the nozzles. I asked the fireman who was showing me about if that was the place they always carried their wrenches. He said "yes, they are handy that way." Now I think most of us know that a nick in the ring of a nozzle tip results in a broken stream and a loss of efficiency in the work of a company. Proper training eliminates such things.

In most poorly trained departments the condition of the tools is an index to the efficiency of the men. Dull axes, for instance, mean a loss of time in opening up at fires, and this usually occurs at a time when the department cannot afford time losses. Every department in the country has just such problems to solve and the only way to surmount them in the race for efficient supremacy is to give thorough and painstaking attention to details when instructing the men.

(From a paper read before the annual convention of the Illinois Firemen's Association.)

FIGHTING RURAL DISTRICT FIRES DISCUSSED AT FARMERS' MEETING

Several Massachusetts Chiefs Take Part in Programs Arranged by the State Department of Agriculture and the Chief's Club

By Harry Belknap

A CONFERENCE on fire fighting in rural districts was recently held in the State Armory in Worcester, Mass., in connection with the annual meeting of the Massachusetts Farm Bureau Federation.

Dr. Arthur W. Gilbert, Commissioner of Agriculture of the Commonwealth of Massachusetts, presided at the opening of the meeting which had to be adjourned to larger quarters because of the overflow attendance.

The speakers included James M. Hurley, who was recently appointed State Fire Marshal of Massachusetts; Maxwell C. Hutchins, State Forest Fire Warden; John P. Crowe, Assistant State Fire Warden; Chief Charles L. McCarthy, of the Worcester Fire Department; Chief Ray D. Wells, of the Falmouth Fire Department; Chief William C. Shepard, of the Pittsfield Fire Department; Chief William H. Hill, of the Belmont Fire Department; Percy Bugbee, Assistant Managing Director of the National Fire Protection Association; and P. Hildreth Parker, Chief of Fire Protection for the New England Telephone and Telegraph Company.

Sponsors of the Meeting

The meeting was sponsored by the Massachusetts Farm Bureau Federation, the Massachusetts Department of Agriculture, and the Fire Chiefs' Club of Massachusetts.

Mr. Hurley, making his first official appearance as State Fire Marshal, declared that the time has come for a realization of the importance of fire prevention and organized fire protection in the country districts. He said that the annual fire loss figures are a distinct challenge and that everything possible must be done to reduce the tremendous yearly loss.

He declared that as Fire Marshal he would be glad to cooperate with the Fire Chiefs and insurance companies. In Massachusetts, he said there were 104 arrests for arson and 48 convictions in 1930 and in 1931 there had been 48 convictions for arson in the state.

Chief Fire Inspector Mansfield was introduced and spoke briefly. Chief McCarthy, of Worcester, gave an address on "Fire Department Organization." He said in part:

"The Chief is the man who has to bear the responsibility for whatever may happen at a fire. Be careful to select a man of character and good judgment to head your department and then when you get a good man don't change him. Keep politics out of the Fire Department and use care in choosing all the officers. Good apparatus is vital and the best is cheapest in the end. After each fire, it is essential that the apparatus be put in shape and be kept always ready to answer an alarm."

Problems of Small Town Department

Chief Wells, of Falmouth, spoke on "Problems of the Small Town Fire Department." He told how to organize a Fire Department in rural districts and said that a small volunteer force could be formed and provided with equipment for an initial outlay of about $8,000 and an annual expenditure of $2,000. In sections where there are no hydrants available he recommended a 250-gallon tank truck fitted with a pump and carrying 600 feet of hose. He said an electric siren was an effective alarm. He advocated accident and life insurance protection for firemen and said that rubber coats, boots, and helmets should be provided by the towns.

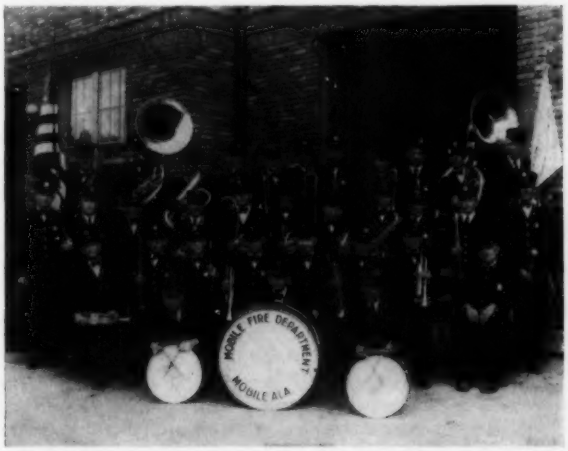
Assistant Fire Warden Crowe told of the watchmen maintained in forest fire towers during the summer, spring, and fall months by the state and said that water holes were being provided in state forests for use of portable pumps.

He said that it is possible to pump water for a mile and get an effective stream through one inch hose. He pointed out the importance of getting to the scene of a fire quickly and said that each town should be careful to select the proper type of apparatus to meet local conditions.

Mr. Bugbee told of a study being made by the Farm Fire Prevention Committee of the National Fire Protection Association and the Farm Committee of the National Fire Waste Council in Washington, D. C. He said that in 1931 there were 35,000 farm fires in the United States and Canada with a total loss of $100,000,000.

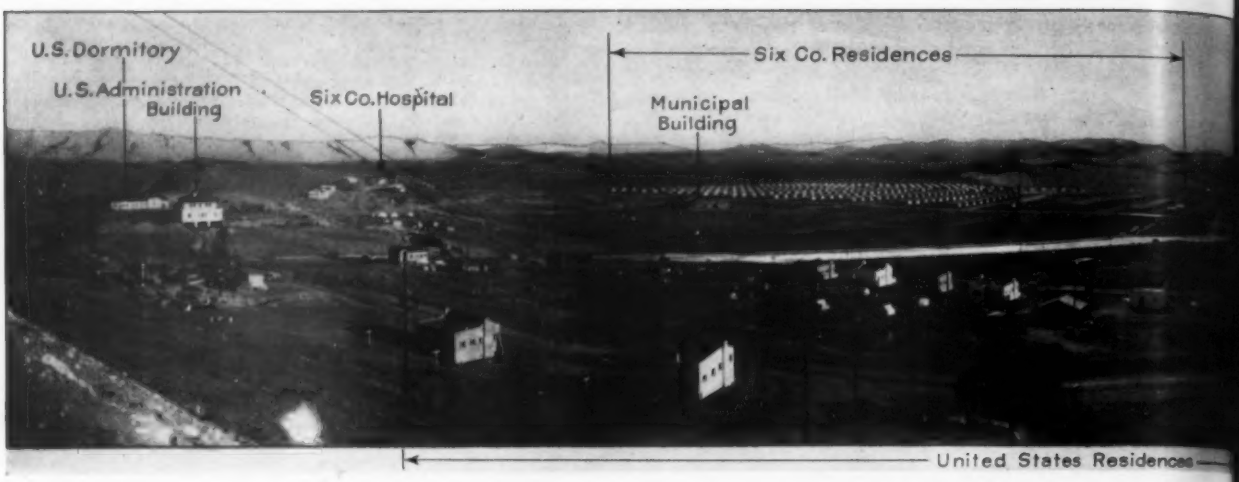
Chief Hill, of Belmont, spoke in favor of a state fire college. Chief Shepard, of Pittsfield, told of the Fire Chiefs' Club of Berkshire County. Mr. Hutchins related the effectiveness of a patrol of forest areas on week-ends and holidays.

It was voted to appoint a committee to study the entire subject of rural fire protection and to hold another conference next year. Among the Fire Chiefs at the meeting were Chief Orville O. Ordway, of Reading; Chief Ernest N. Bartlett, of Billercia; Chief James Warnock, of Swampscott; Chief W. P. Skelton, of Burlington; Chief Blois, of Westboro; Chief John Neary, of Natick; Chief Waitt, of Bedford; Chief Gillis, of Uxbridge; Chief Merry, of Duxbury; and Ex-Chief Edward E. Chase, of Lynn.



Fire Department Band of Mobile, Ala.

The above photograph shows the extent to which the Fire Department band of Mobile, Ala., has developed. Chief Gus Rehm, head of the department, is seated at the extreme right, first row.



Boulder City, Nev., Headquarters of Boulder Canyon Project, Located Six Miles West of Ho... at the

Boulder City Fire Protection

Planned to Safeguard Frame Mushroom City Near Dam Site

By W. R. NELSON,
Assistant Engineer,
U. S. Reclamation Service

BOULDER CITY, the base camp from which the Hoover Dam is being built, is primarily a construction camp and the greater number of its buildings, by reason of their temporary occupancy, are of light frame construction. These conditions of impermanence have made necessary the dependence on other means than fireproof construction for fire protection and have required the use of efficient and up-to-date preventive measures and fire-fighting methods to quickly confine and extinguish any fires that might occur.

Adequate Water Available

It was recognized that the primary requisite for an effective fire-fighting organization was a water system that was widely distributed, readily accessible, and of large capacity and adequate pressure. Bureau of Reclamation engineers, in planning and supervising the construction of the water supply and distribution system for Boulder City, made certain that these requirements were met in full.

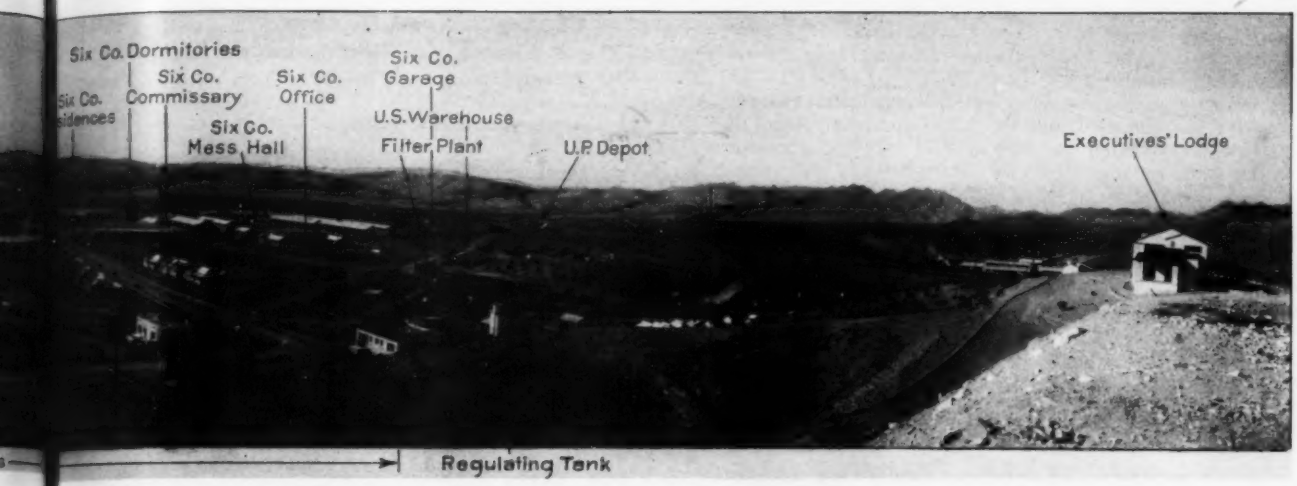
Four pumping stations, capable of lifting more than 1,500 gallons of water per minute, now supply Boulder City with water from the Colorado River through nearly 7 miles of 10 and 12-inch pipe line, raising the water from elevation 645 at low-water stage of the Colorado to elevation 2,670 at the top of a 2,000,000-gallon storage tank in Boulder City, a maximum lift against static pressure of 2,025 feet.

The distribution system in Boulder City consists of a 12-inch supply line from the storage tank connecting with 10, 8 and 6-inch cast-iron mains, all arranged in loops with no dead ends. For fire protection, 6-inch lines are also laid to all public buildings, where they connect with 1½ and 2-inch standpipes. Fire hydrants of compression type, each with revolving head and equipped with two 2½-inch nozzles and 5-inch valve opening, are installed at or near the junction of all intersecting streets and between intersections, when the blocks are of unusual length, placing all points in the inhabited portion of Boulder City within a distance of 350 feet from one or more hydrants.

In all their large buildings, such as dormitories, garages, warehouses, and offices, the Bureau of Reclamation and Six Companies Incorporated, the principal contractor, have installed 1½ and 2-inch standpipes that are equipped with hose and so located that a fire in any part of the building may be reached and extinguished. For additional protection, fire extinguishers are placed in all these buildings and the principal contractor has placed a fire extinguisher in each or every other one of its residences throughout the town. To provide further protection, Six Companies Incorporated has placed barrels filled with salt water on the porches of all its dormitories and between all its residences. These barrels are inspected each week, and water that has evaporated is replaced.

Two Fire Departments Efficient and Well Equipped

Boulder City has placed its principal dependence for fighting fires on two well-equipped and efficient volunteer fire departments, one organized by the Bureau of Reclamation and the other by the principal contractor. The Bureau of Reclamation has provided its department with a triple combination pumping, chemical and hose-carrying fire truck mounted on a Reo chassis. The pump is capable of delivering variable capacities at variable pressures from 117 gallons per minute at 250 pounds pressure to 350 gallons per minute at 120 pounds pressure. The hose body carries 800 feet of 2½-inch cotton-jacketed, rubber-lined hose in one com-



...n, at the Summit and Near the Terminus of the Union Pacific Section of the Branch Railroad

partment and 400 feet of 1½-inch hose of similar construction in another compartment. A 100-gallon copper chemical tank is mounted on the truck and connected with the suction of the pump. Three 50-foot lengths of ¾-inch chemical hose are furnished for this tank.

The piping of the pump is so arranged that water can be forced through two 2½-inch discharge valves or through the ¾-inch chemical hose. Two 2½-gallon fire extinguishers are carried on the truck, as well as the usual complement of electric siren, ladders, axes, nozzles, couplings, and other equipment.

The personnel of the Reclamation Fire Department consists of a Fire Chief who is on other duties near the fire engines during the day time and quartered near it at night, and a group of volunteer firemen who are employed in various activities in Boulder City and ready at all times to answer a fire call.

An electric fire siren is mounted on the building which houses the fire engine. Whenever a fire occurs the telephone central is notified of its location or the fire call is sent direct to the fire station. The ringing by central of the fire number actuates a large gong at the fire station. The fire alarm is then broadcast by the siren, the volunteer crew being notified of the location of the conflagration by the number of blasts of the siren.

The equipment of the Six Companies' fire department is similar to that of the Government, the foremost exceptions being the mounting of the truck body on a Ford chassis and the omission of the booster pump. The pump has been considered unnecessary because the water pressure in the district in Boulder City occupied by the contractor is nearly 80 pounds per square inch, furnishing sufficient pressure to throw a stream from a 2½-inch fire hose over any of the contractor's buildings.

Organization of Fire Department

The personnel of the contractor's Fire Department consists of a full-time Fire Chief, who has had years of experience in fighting fires, and a crew of men definitely appointed to act as firemen, five of whom are on duty at night and five during the day. The duties of the Fire Chief, exclusive of directing the actual fire-fighting operations, are those of inspection and supervision of fire-preventive measures and the upkeep of all fire-fighting equipement. The firemen are usually employed elsewhere than in Boulder City during one 8-hour shift, and the hours in which they are available for fire call are during the hours between their regular shifts. These men are therefore paid a regular monthly bonus for being available for fire duty and in addition an amount for each fire drill and each fire call. The Fire Chief and firemen are quartered in adjacent rooms in one end of dormitory No. 3 near the garage in which the fire truck is housed. A fire gong and telephone are installed in the garage and in the room of the Fire Chief. A 4-tone electrical fire siren is mounted on the garage and when a fire occurs a number of blasts are given to designate the location of the blaze, in the same manner of signaling as that of the Government.

Consolidated Fire Department Proposed

It is contemplated that the fire departments of the Government and the principal contractor will be consolidated and that the fire truck of the two organizations will be housed in the Government garage as soon as the construction of this building has been completed. The merging of these two departments will eliminate, to some extent, the duplication of maintenance costs and the duplicate installation of fire-alarm systems. It is also believed that the concentration of the fire-fighting equipment in one location will coordinate the efforts of the two organizations and increase the effectiveness of their combined fire-fighting operations.

Initial precautions to prevent fire from spreading among buildings were taken in the planning and laying out of Boulder City, first by grouping buildings according to the permanency of their construction and their use for various activities and second by separating the buildings as far as practical, taking into consideration the cost of city improvements and the convenience of the residents.

Only in the central business district is it expected that there will be any building congestion, and this district has been confined within designated "fire limits," within which only fire-resistant buildings of construction equal to or better than those defined as "semifireproof construction" and "ordinary construction" are permitted.

More than 50 per cent of the residences built by the Bureau of Reclamation and all of its other buildings are of construction similar or better than the "semifireproof construction" described above. Nearly all of the buildings of the Six Companies Incorporated are of

frame construction with interior walls covered by gypsum board. The principal fire-resistant features of these latter buildings are an exterior coat of stucco on all walls, composition shingles or other fire-resistant covering for the roof and the addition of fire stops in interior construction to prevent fire from progressing within walls or beneath floors.

Water Curtain Installed

The mess hall, laundry, and dormitories Nos. 1, 2, and 4 of the principal contractor and an office building and warehouse of a subcontractor have all been placed in one block. Here additional fire protection has been provided by installing a "water curtain" on the south end of dormitory No. 2 which will separate the group of buildings at one end of the block from the buildings at the other end and prevent fire spreading from one

Boulder City Fire Fighters

Upper, mobile fire-fighting equipment of Bureau of Reclamation. Government residences in background; lower, fire truck of Six Companies. In distant background, commissary, dormitories, and other large buildings occupied by the contractors.

group to another. The "water curtain" consists of a series of spray nozzles, mounted on a 2-inch galvanized line, installed along the eaves at the south end of dormitory No. 2 and following the eaves eastward along the walls a distance of 50 feet. The 2-inch galvanized feeder connects to a 6-inch supply line, and when the apparatus is in operation the spray nozzles discharge at a rate equal to the play of six lines of fire hose on the walls of the building. As the covering of the roof of the dormitory is of fire-resistant materials, it is expected that a conflagration will be prevented from progressing past this "curtain."

The efficiency of the fire-fighting equipment in Boulder City and of the preventative measures established there have been demonstrated by the fact that all fires occurring to date have been extinguished with a loss of less than $100 except in one case, when the loss was slightly above this amount.—*The Reclamation Era.*

DWELLING HOUSE INSPECTIONS RID CITY OF STORED RUBBISH

During the Period of Inspections, the City Incinerator Handled 35 Extra Tons of Rubbish Each Day, and Homes Were Made Safer

By Frank Charlesworth

Chief of Fire Department, Providence, R. I.

BASED on personal experience that I have had in my own city, I should like to emphasize the value of inspections of dwelling houses. Beginning in September 1930 my department conducted an inspection of dwelling houses in Providence. I had this idea in mind for several years but had some hesitation about it as our ordinance does not permit an inspection of dwellings. I decided that by instructing the firemen in proper courtesy and approach to each dwelling we would probably get good results. The men volunteered their services for the campaign on their off-time. Before undertaking the inspection I talked with the editors of the local newspapers and others interested, and secured their hearty support. For a couple of weeks prior to the launching of the inspections, the newspapers carried the story about the inspection and followed the initial story by daily stories, editorials, cartoons and other publicity. I decided to confine the inspection to the basements of dwellings. Members of the department were sent out in pairs. The firemen would ask permission of the housewife for the inspection and would ask her to accompany them, calling attention to such defects as lack of fire stops, no clean-out doors in chimneys, defective heating apparatus, rubbish, wooden ash barrels, defective electric wiring, etc. Two pamphlets were left with the housewife calling attention to other parts of the house where fire might originate before going to the next house.

Chief Frank Charlesworth

What the Campaign Accomplished

It required about six weeks to complete the inspection and the success of our method is illustrated by the fact that of the 77,077 dwellings visited, we were refused admittance to only 231. During the campaign the city incinerator handled 35 extra tons of rubbish daily. The incinerator took in 3,500 old Christmas trees, although the inspection was made eight months after Christmas. Thirty-eight hundred old mattresses were received at the incinerator during the campaign. One very good effect of the campaign was the fact that many housewives cleaned up before the firemen arrived. We secured excellent results in reduction of dwelling house fires from the inspection. I feel that this campaign was one of the best ways to educate the people in fire prevention that I know of. We have followed up the campaign with considerable publicity with excellent results.

It is my intention to conduct a similar campaign this fall. The publicity to the Fire Department was very favorable. Contact with the housewife is not ordinarily made in a fire prevention campaign and I think is particularly effective in reaching the other members of the family.

(Presented at Massachusetts State Fire Prevention Conference in Boston.)

Decisions of Higher Courts On the Obligatory Nature of

Fire Department Contracts

By LEO T. PARKER
Attorney-at-Law

IT is well settled law that a contract relating to a municipal Fire Department is valid, (1) if both contracting parties are obligated to perform one or more lawful acts; (2) if the contract does not violate constitutional provisions or state or city laws; (3) if both contracting parties have definitely agreed upon their respective obligations; (4) if the duration of the contract is definitely stipulated; (5) if the contract and its performance is free from fraud, misrepresentation and deceit; (6) and, if properly authorized city officials sign or subsequently ratify the contract that has been drawn.

Issuance of Bonds Not Authorized

The law is well established that a municipal corporation has no power to issue bonds in aid of a work of Fire Deparment improvements unless expressly authorized by state statute to do so. Also, it has been held that it is one thing to have the power to incur a debt and to give proper vouchers therefor, and a totally different thing to have the power of issuing obligations, such as bonds, unimpeachable in the hands of third persons. Therefore, the power to purchase Fire Department equipment does not include the authority to issue municipal bonds in payment therefor.

For illustration, in State vs. Marsh, 238 N. W. 760, it was disclosed that a state law provides that cities having a population of more than 1,000 and less than 5,000 shall be cities of the second class, and authorizes such cities to enact ordinances for the purpose "of procuring fire engines, hooks, ladders, buckets and other apparatus."

A city of the second class proceeded to purchase certain fire department equipment and issued municipal bonds for the purpose of obtaining money to pay for such equipment. Litigation developed over the validity of the bonds. It was contended by the purchasers of the bonds that the same were valid since the above mentioned state law authories the city to purchase Fire Department equipment.

However, it is important to know that the Court held the city without power to issue valid bonds, and said:

"It is not denied that it was necessary for said city to purchase the fire equipment and that no money was available. . . . It is insisted that, if cities of the second class are given the right to provide by ordinance for the purchase of fire fighting equipment, such cities must have implied power to issue bonds to raise money to purchase such equipment. . . . In our opinion the rule prevailing in the majority of states at this time, as well as in the later decisions of the United States Supreme Court may be expressed as follows: As a municipal corporation has no power to issue bonds except by legislative permission, the Legislature, in granting permission to a municipality to issue its bonds, may impose such conditions as it may choose, and unless the conditions are complied with the issue is unauthorized and the bonds are invalid."

Another important higher Court case involving this point of the law is State vs. Babcock, 41 N. W. 155. In this case the state auditor, not feeling certain as to his duty, declined to register bonds presented by the city for the purpose of erecting a building for the Fire Department.

The higher Court held the bonds valid and interpreted the state law to mean that the municipality had power to issue bonds for the purpose of constructing public buildings, because the law implied this authority.

Other higher Court cases involving the right of a municipality to issue bonds are as follows: State vs. March, 104 Neb. 159, in which the Court said:

"It is a general principle of law that municipal bonds must be issued in conformity with the statute in force at the time of issuance."

In Swanson vs. City of Ottumwa, 131 Iowa, 540, the Court quoted the following law:

"Even where power to borrow money is expressly given, we have held that there is no implied authority to issue negotiable bonds to accomplish that end."

The Supreme Court of Iowa has quite recently said:

"Authority of municipality to issue negotiable bonds must be found in express language of statute and cannot be implied." Muscatine Co. vs. City of Muscatine, 205 Iowa, 82.

In Kay vs. Kansas City, 119 Kans. 368, the Court held:

"Municipalities cannot issue bonds or other like securities unless power to do so is conferred by legislative authority, or clearly implied, and any reasonable doubt as to the existence of such power should be resolved against its existence."

Fire Hose Purchase Contract Held Ratified

An important point of the law is that city officials, who purchase Fire Department equipment, obligate the municipality if expenditure of the money is authorized and the equipment is utilized by the city. This is true although the officials who made the contract failed to comply with all laws relating to Fire Department purchase contracts. It is deemed that under these circumstances the city ratified the contract.

Subjects Treated in This Article

When Issuance of Bonds by Municipal Corporation Is Unauthorized

Contracts for Purchases by Cities Held Ratified

Case in Which a Municipal Lease Is Held Void

Instance Where Interested Party Does Not Invalidate Contract

For instance, in City of Ft. Smith vs. a fire hose manufacturing company, 42 S. W. (2d) 1004, decided during the past few weeks, it was disclosed that a municipality operates under a commission form of government with a Mayor and two Commissioners known and designated as Commissioner No. 1 and Commissioner No. 2. The Mayor is in charge of the Department of Public Affairs and is the chief executive officer of the city, and Commissioner No. 1 is in charge of the Department of Accounts and Finances and the Department of Health and Safety. The Fire Department is a part of the Department of Public Safety.

The city was in need of 6,000 feet of fire hose and advertised for bids to be submitted for this quantity with the right to take a lesser amount.

The seller, who submitted the lowest bid, received a modified order for 2,000 feet of hose at an agreed price. Later the city, through Commissioner No. 1, ordered an additional 1,000 feet of the same kind of hose and on the same terms under a written order which recited that at a meeting of the City Commission he was instructed so to do. Soon thereafter, on account of a disastrous fire which showed the necessity for additional hose, Commissioner No. 1 ordered by telephone an additional 3,000 feet of the same kind of hose and on the same terms as the two orders above mentioned and confirmed this order by letter. In this letter it was stated that, "This order is to be handled in the same manner as under date of December 22."

The city officials accepted delivery of the hose and at present are using the same with entire satisfaction. However, no payments were made on the contract of purchase and the seller of the hose filed suit against the city to recover full payment.

The counsel for the city admitted liability on the first two orders for the purchased hose, but contended that the third contract was invalid because it had been ordered by telephone and the contract was not signed as required by a state law which provides that the Mayor shall be the chief executive officer of the city and shall "sign all bonds, contracts, conveyances, and other written obligations of the city."

Notwithstanding this argument the higher Court held the city liable for payment of the full amount of the bill, and stated the following important law:

"We think the third contract not invalid on account of the informalities in its execution. . . . The city also ratified the unauthorized act of its agent, if unauthorized, by accepting, keeping, and using the fire hose, and it would do violence to one's sense of common honesty and fair dealing to hold that collection could not be enforced because of mere irregularities in making the contract or that the agent exceeded his authority in doing so. . . . The city could not retain the property which it might then legally purchase, continue to use it, and defeat a recovery for the price thereof."

Also, in another case, Forrest City vs. Orgill, 87 Ark. 389, it was shown that a city purchased machinery under a contract which was void because it was not executed as required by the law.

The city, however, kept the machinery and continued to use it. Therefore, the Court held that, inasmuch as the contract was one within the power of the municipality to make, although it was made without authority, it could not retain the machinery, use it, and at the same time defeat a lien for the price thereof.

The theory of these cases, says United States Judge Kenyon in the Scott Case, 288 F, 739,

"is that a corporation, such as a county or city, should not be permitted to stultify itself by accepting property for necessary use, use it for years until it is worn out, and then refuse to pay on the ground of a lack of authority to make the contract."

In other words, the Courts will not permit a municipal corporation, which has enjoyed the fruits of a contract fairly made, when called to account, to deny the corporate power to make it.

Municipal Lease Held Void

Generally speaking, either a purchase or a lease contract for city property entered into by municipal officials, or other representative, is void and unenforceable if the terms of the contract may result in financial loss which may be readily anticipated and avoided. This rule of the law is applicable although the city property is intended to be utilized for fire department purposes. So held a higher Court in the recent case of Myers vs. Post, 239 N. W. 315.

The facts of this case are that a city owned a building which was valued at $45,000. Notwithstanding the fact that the property was rented to a financially responsible party at a rental of $3,000 per year under a lease, the Board of Supervisors of the county authorized the leasing of the property to the city for a period of three years at an annual rental of only $501. This rental contract was made because the Fire Marshal stated that it was essential that the city acquire the property in order to promote the efficiency of the Fire Department, by the use of a portion of the property as a drill field and fire tower.

Certain property owners filed suit to prevent use of the building by the city at the reduced rental. In holding the county officials not entitled to renew the lease contract, the Court said:

"It would require strong proof under the present circumstances to show that the indirect benefit to the entire county was the moving consideration in refusing to continue a lease from a responsible person at $3,000 a year instead of leasing it to the city for $501 a year. . . . Even though there may be no willful dishonesty in the transaction, it is a constructive fraud on the rights of the taxpayers of the county."

Interested Party Does Not Invalidate Contract

Frequently, the Courts will declare a municipal contract void where it is shown that a city official directly derives profits from enforcement of the contract. However, this rule of the law is not always applicable with respect to contracts for purchase of common commodities of necessity, particularly if it is shown that the contract is not tainted with fraud, and the contract price is reasonable.

For example, in City of Edinburg vs. Ellis, 42 S. W. (2d) 291, it was disclosed that the Mayor of a municipality, also, was agent for an oil company. He signed a contract for the city agreeing to purchase oil and gasoline for use in the various departments from the company of which he was agent. Litigation developed over validity of this contract. It was contended by certain citizens that the contract was invalid because the mayor was an agent of the selling company. However, the higher Court refused to uphold this contention, and said:

"We cannot see how the purchase of oil or gas, if it was done under the circumstances of this case, constitutes any fraud or illegality. In order to taint a contract with fraud, some understanding between the party contracting and the member of the governing board from whom he purchases the product must be shown at the time the contract is entered into whereby the contractor is to use only the supplies of the Commissioner or is to sell only those supplies to the municipality or that the Commissioner is to receive some

special benefit from the contract. In the instant case, no agreement is shown, and plaintiff did not purchase from the Commissioner, but bought from an oil corporation of which the Commissioner was local agent. . . . The items contracted for and sold to the city for which it issued the notes show them to be a necessity and things that the city must have. . . . That the Commissioner was an agent of one of the beneficiaries selling the commodity in no sense rendered the transaction invalid. No contract was made by him for his sole benefit. The contract was free from any elements of fraud or other vice."

FIRE PROTECTION PROVIDED FOR NEW SUBWAY'S SHOPS AND YARD

Boxes Record in Office of N. D. T. and Signals Are Then Sent Over Special Wires to New York City Fire Alarm Headquarters

By William Jerome Daly

THE Harlem River yards and shops of the new subway system for New York City, contain one of the most complete and largest automatic firm alarm and sprinkler supervisory systems installed in the city. The

General View of the New Storage Yards and Repair Shops New York City

storage yards will have a capacity for maintenance of 3,000 subway cars, and inspection facilities for 800 cars.

The fire alarm system consists of fifty combination central office and local fire alarm boxes. These are installed so that it will not be necessary to go more than one hundred feet in any of the buildings to summon the Fire Department.

The operation of one of these boxes will automatically code, on fifty single stroke gongs varying in size between eight and twelve inches located throughout the entire property, the exact location of the fire alarm box pulled. It will be possible for a local or plant brigade to respond immediately for emergency work prior to the arrival of the city Fire Department. Simultaneously, with the sounding of the gongs, the signal is recorded on punch type registers using automatic time stamps to show the exact minute, hour, and date that it operated, as well as sounding in the main office of the National District Telegraph Company, 44 East 23rd Street, where the signal is retransmitted over special wires to the fire alarm central station in Central Park. With this arrangement, fire companies assigned to respond know the exact location of the box within one minute after the box has been pulled. The gong circuits and local fire alarm circuits through these stations are of a closed circuit type, and will indicate if there is any disarrangement on any of the lines, that is, whether they are grounded or open.

Special Circuit Arrangement Summons Fire Department

The feature which summons the Fire Department is a special circuit arrangement. If two or more boxes are pulled simultaneously, one will always register a clear signal so that there will be no confusion concerning the location for Fire Department information. If this same circuit should become open, grounded, crossed, or any combination of these three, it is still possible for a signal to be received. In fact, a signal will be received with any circuit condition excepting if the box should become entirely cut off from the wires.

There are 24 sprinkler system alarm valves in these buildings so arranged that if a sprinkler head fuses, either due to heat or any other cause, the exact location of that happening will be known because separate transmitters are used for each alarm valve. When one of these signals is received, it automatically records in the boiler room the same as the fire alarm feature and also in the office of the National District Telegraph Company, from where it is re-transmitted to the Fire Department so that they in turn know the exact location of the operation.

Throughout the yard and buildings are scattered sixty post indicator valves and O. S. & Y. valves for controlling the water supply to the sprinkler systems and standpipes. If any of these control valves are closed one-and-one-half turns, the signal is recorded in the boiler room and also in the National District office where the fact is immediately reported to officials in charge.

The same method of handling signals applies if the current used for operating the electric fire pump goes below the minimum working voltage, or if the steam on the boilers becomes too low to operate the steam driven fire pump. A signal is also actuated if the city water supply becomes too low for fire protection purposes.

Switchboard Controls Over 60 Miles of Wire

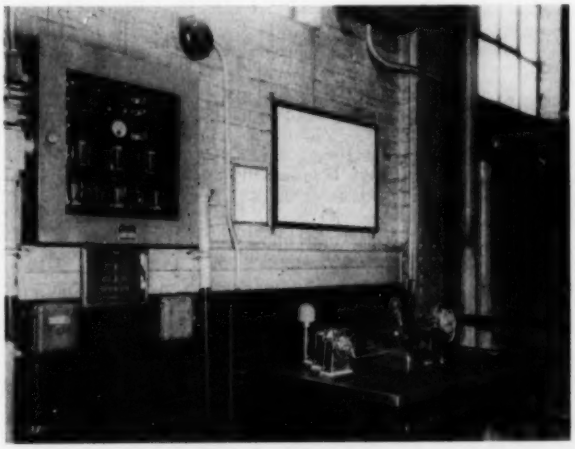
Because of the area (49 acres) that this system is designed to protect, there is installed over sixty miles of wire, all of which is in rigid conduit or cables. On the mezzanine floor in the boiler house, there is installed the necessary switchboard and control equipment so that by merely throwing switches it is possible to operate this entire system independently without any outside central office connection.

All of this equipment is of steel and fireproof construction. The steel switchboard which is used for controlling the circuits has the necessary relays enclosed under glass. From this point, all the power necessary to operate the system is distributed. There are meters for the different power circuits so that an operator can tell at a glance if the circuit is in trouble. It also indicates automatically, if the charging source for the storage batteries becomes disarranged or if the storage batteries themselves should become defective.

Edison storage batteries are used in sufficient capacity to operate the system for seventy-two hours in case of a current failure; the Rectox type of Rectifier is used for rectifying the current for charging the batteries. The combination of these two elements makes a storage battery equipment that will be free from trouble to the highest degree. Provisions are made on this switchboard for controlling the charge and for determining the characteristics of the various circuits.

There is mounted on a steel table necessary time stamps,

(*Continued on page* 206)



Group of Punch Registers

Punch registers give signal, date, hour and minute the alarm is sounded in New York City's new rapid transit storage yard and shops.

The Volunteer Fire Department

By N. N. WOLPERT,
Assistant Editor, Fire Engineering

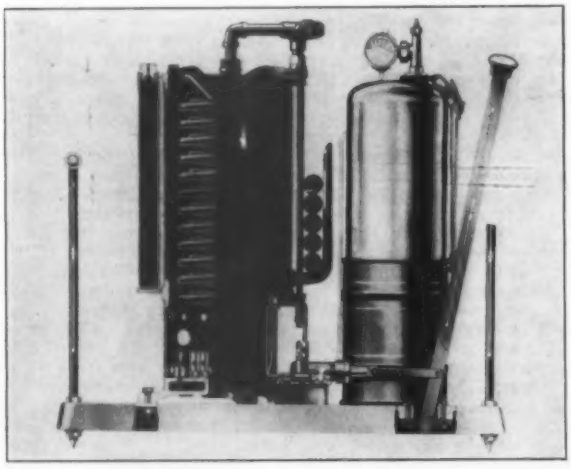
A Series of Articles on Volunteer Fire Department Administration and Operation

Fire Department Tools Used by Volunteer Firemen

This article, the twenty-first of a series, describes a few of the common tools frequently used by volunteer firemen, and concludes the series on "The Volunteer Fire Department."

Where Fire Departments frequently encounter frozen hydrants, it is necessary that the apparatus carry some means for thawing. The type illustrated is a steam thawing device. It consists of a two-gallon water tank, hand operated pump which forces the water from the tank into the coils which are heated by gas from a Prest-o-lite tank, and a line of steam hose and a nozzle.

When using this device, the water tank is filled through a small cap at the top, and a solution consisting of one-half denatured alcohol and one-half water is used. This mixture is used to prevent freezing when the thawing device is not in service. The Prest-o-lite tank should register at least eighty pounds pressure on the gauge. If the gauge does not show so high a reading, it should be replaced by a new one, as otherwise the burner will not have sufficient gas for thawing.



Design of a Hydrant Thawing Device

To operate, a lighted match is first placed over the gas burner through a port hole in the metal shield. The gas valve is opened slowly until the gas is lighted and then the gas is turned more full so that the flame projects eight to ten inches above the top of the device. Start pumping water from the tank into the coils immediately, by operating the force pump handle. At no time after the burner has been lighted should the pumping be discontinued as otherwise serious damage might result to the coils through overheating. The pump handle is operated at from seventy-five to one hundred strokes a minute. It is well to have the steam pipe nozzle open to the air so that one can watch the escape of steam. When the proper steam pressure is secured, the nozzle is inserted in the hydrants. Not over twenty seconds should elapse from the time the device is started until steam is issuing from the pipes.

When the device is properly operated, steam as it leaves the nozzle will be blue and transparent, condensing to a white vapor within a few inches from the nozzle. Should the steam leave the nozzle in the form of heavy white vapor, often accompanied by water and a fine spray, it is an indication that the pump is being operated too rapidly, or that the gas is not turned on enough, or that the pressure in the gas tank is too low.

Hose Clamp

There are several types of hose clamps for Fire Department use designed to shut off the flow of water in a hose line without having to disconnect a hose line or to shut down on the water flow. Of the many types that have been manufactured, the Peerless is probably the most common. The illustration shows the clamp ready to receive the hose line between the jaws of the tool. When the hose is in position, the lever handle is raised and the hose is firmly clamped between the jaws.

Peerless Hose Clamp

Hose clamps are employed to relieve the pressure on lines to be carried up ladders. If desired, the coupling can be broken and the water allowed to run out as the line is carried up. When the line is in position, the coupling is connected, and the clamp is removed so that the line is recharged under pressure. The clamp can also be used to place a siamese on a single line, to change tips, to replace a broken length of hose or to add more hose to a line.

Combined Hose Shut-Off and Door Opener

Two tools have been combined in one with the Pirsch Hose Shut-Off and Door Opener. As a hose shut-off, the upper handle is moved over to the left. This opens up the jaws of the tool to receive a length of hose. By moving the handle back to its former position, the hose is compressed so that the flow of water is obstructed.

Combined Hose Shut-Off and Door Opener

To serve as a door opener in the manner of the Hale Door Opener, the operator holds the longer handle on the bottom and the jaws which previously served as a clamp are now placed on the ground near the door. The other handle which was used to operate the tool as a hose clamp, is placed up against the lock of the door. The larger handle is operated and in this way the door is forced in.

A folding trussed ladder has been developed so that it can be carried on fire apparatus in the same manner as a pike pole. The ladder is provided with folding hooks so that the folding trussed ladder may serve as a ceiling, wall and roof ladder, when opened, as the occasion may demand.

Playpipe and Stick

Playpipe and stick combination is employed to handle streams from large nozzles. Due to the reacation of the nozzle which tends to drive the nozzle and hose backwards, and the tendency of the hose line to ship, it is necessary to provide a stick which is locked on the playpipe.

After the line has been brought to the desired position, and the playpipe has been secured, it is necessary to fold back the hose with the pipe from the direction of the fire, and then insert the stick into the slots provided on the side of the pipe. It is locked by means of thumb screws. The

device is now brought back to its proper position so that the hose lies in a straight line behind it.

The stick resists the tendency of the line to "whip" as well as to back up. At the same time it eliminates the necessity of men to hold a heavy nozzle and line when the stream is in operation. With the use of the playpipe and stick, it is possible for men to operate a heavy stream for a much longer period without fatigue.

Inhalator

An inhalator is a device used for resuscitating persons overcome by gases, as well as for resuscitating persons whose lungs have become congested or otherwise affected so as to tend toward suffocation.

A victim of gas asphyxiation, smoke suffocation, etc., who is still breathing, is for the time deprived of the power to transport sufficient oxygen from the air through the lungs to the blood.

A mixture of five per cent carbon dioxide and ninety-five per cent oxygen is used in the inhalator.

Two cylinders, filled with the mixture and each holding sixteen cubic feet at 135 atmospheres or nearly 2,000 pounds pressure, are coupled to a manifold in which high pressure gauge is inserted. By operating the valve of the cylinder, the mixture flows to a high pressure reducing valve and then through the measuring dial to indicate the rate of flow. The gas mixture flows into a rubberized cloth reservoir and from there by means of a rubber hose fitted with a face mask, to the patient.

As one cylinder becomes exhausted, the supply is obtained from the reserve cylinder by simply opening its valve. If both cylinders become exhausted, the measuring valve is operated to take air from the outside without an interruption of treatment.

Waterproof Trousers

Trousers made of rubberized duck or canvas are used for protecting the wearer against ammonia or other gases which would likely cause injury to delicate parts of the body. The feet and legs of the trousers are all in one piece and a draw string is provided at the waist line to insure completed protection of the lower portion of the body when the trousers are worn.

Salvage Covers

The first salvage covers manufactured were made of canvas treated with tar, and it is from this process that the covers were called "tarpaulin." Such covers were unsatisfactory as they had a tendency to stick when the weather was warm, and there was difficulty in spreading the covers.

The next step in the development of salvage covers, was canvas impregnated with oil, usually linseed oil. These covers, too, would stick when warm so that spreading covers became slow work.

In recent years, two types of covers have been developed, the "Shuredry" and the rubber cover. The "Shuredry" cover is made of canvas woven so tightly that it will hold water. It is not treated with oils or any other water-proofing compounds.

Rubber covers are made of canvas impregnated with rubber. They are heavier than the "Shuredry" covers, and are not quite as generally used.

Salvage covers are provided with eyes or grommets through which rope, cord, etc. may be passed when suspending the covers or joining them together to make a larger cover. Salvage covers are used for protecting goods exposed to water at fires and they are also used on a more limited scale for covering openings in roofs caused by fire or cut by members of the Fire Department. In other words, temporary protection for holes in roofs are provided by waterproof covers to prevent damage by the elements until the roof can be repaired.

Sledge or Maul

The sledge or maul is used for breaking deadlights, driving the rivet cutter, driving in bars which are set to obstruct windows, or for breaking masonry to release bars set in the masonry, or for similar operations.

Strainer

The strainer or basket is used in connection with a suction hose line to prevent entry of sand, gravel or other abrasive and foreign material into the pump. One end of the strainer is provided with a coupling to fit the suction hose with which it is used. The strainer end generally has a ring through which a rope may be tied so as to keep the strainer free from the bed of the stream from which the pumper may be drafting water. In using the suction strainer, it should be emerged just deep enough from the surface to prevent the formation of a whirlpool when the pumper is operating.

The strainer commonly used when drafting resembles a metal tube, with a dead end, and with holes bored along its surface for the entrance of water. There is another type made of woven wire of a coarse mesh. This type is used when it is necessary to pump water from a cellar.

Spanner or Hose Coupling Wrench

A spanner might be termed a hose coupling wrench. There are a great variety of spanners on the market, some made in the form of a combination spanner and hydrant wrench, while others are just plain spanners. Since the introduction of the rocker coupling, a distinct change has been made in the more commonly used spanners so as to provide a means for coupling up hose with rocker lugs as well as with pin lugs for which the old style spanners were designed.

Hose Strap

Hose straps are used to carry hose lines up ladders and for securing hose lines to fire escapes and ladders. They are also used to assist in handling lines in other ways. With a hose strap it is an easy matter to secure a line of hose on a ladder or a fire escape.

Hose Strap

It is only necessary to pass the strap around the hose, place the hook of the strap over the strap, and then place the hook over a rung of the ladder or over the railing of a fire escape. The handle proves an effective means for working the hose lines.

Hose for Suction

There are two types of suction in use, the soft suction and the hard suction. The soft suction is satisfactory where there is sufficient hydrant pressure and where the water is supplied to the pumper in sufficient volume to prevent a vacuum being created on the intake side of the pumper. Such a vacuum, should it develop, will flatten out the soft suction and stop the flow of water to the pumper. Soft suction is much easier to handle than the hard suction. It is of no use, however, for taking water from draft for as soon as a vacuum would be created, the suction would collapse.

Hard suction is made up of spirally wound metal strips which are covered with fabric and rubber. Due to the metal strips, the hose will not collapse under a vacuum while the pumper is operating. It is used for taking suction from hydrants, as well as from open bodies of water such as streams, rivers, ponds, cisterns, etc. The chief precaution to observe when using hard suction is to see that all couplings are tight, for small air leaks into the suction line will destroy the effectiveness of the stream delivered by the engine, to say nothing of the reduction in efficiency of the pumper. Hard suction hose is manufactured in many sizes ranging from 2½-inch up to 5-inch diameter.

Larchmont, N. Y., Holds Fire Officers' School

The Larchmont, N. Y., Fire Department, guarding one of the finest residential sections of Westchester County, holds a monthly school for its officers. In the report of Chief George S. Towle to the Village Board of Trustees, he says:

"The Fire Council has met on the second Monday of each month and in addition to giving full consideration to the routine of managing the Department, has afforded all officers an opportunity to study fire fighting and fire prevention. An average of eighteen officers has attended these schools and with the knowledge there secured, are enabled to go to their companies and instruct the personnel, so that at this time we have a well informed, well drilled, devoted and earnest membership. The department has drilled six times, with an average attendance of over one hundred. Each company has held over twelve business meetings, at which much theoretical instruction has been given and, in addition, each company has held twelve or more drills (very necessary for the instruction of new members)."

The Department is equipped with two pumpers, a ladder truck, hose and chemical, patrol and chief's car. The average loss for five years has been $10,695.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

CHEMICAL TANK VS. BOOSTER TANK

MANY firemen and officers still hold to the theory that chemical streams have inherent properties which make the charged streams of more value in fighting fires. In order to provide chemical stream flow of many minutes duration, some types of apparatus carry thirty-five gallon tanks or tanks of larger capacity.

But the trend has been said to be away from the chemical tanks and towards the booster tank which discharges a small size stream from a tank by means of a booster pump.

So often has the argument developed concerning the merits of the respective tanks, that this problem, which is printed in full in the box on this page, has been prepared for Round Table discussion.

Due to the large number of replies that have been received, it has been necessary to print this discussion in two installments. The concluding part will appear in the next issue of FIRE ENGINEERING.

Discussion of the Question

C. T. Donnelly, Acting Chief, Lakewood, Ohio: Our experience has taught us that a 40-gallon chemical tank is of more value than a 35-gallon tank, but today we would prefer a booster tank if the pump intakes were equipped with proper gate valves or siamese with clapper valves to permit connecting a hose line from a hydrant to the pumps before the booster tank supply is exhausted. The majority of apparatus are delivered with caps on the intake of pumps and do not permit connecting any hose lines from a hydrant to the pumps or from draft until after all water has past from booster.

The chemical tanks, if properly charged and supervised, will give a small amount of extinguishing value within a very few minutes and permit you to hold or extinguish a fire until your 2½-inch hose lines are layed or equipped with 1 inch leader lines.

The chemical tank if not properly supervised and charged, will refuse to discharge, and if connections are poor, will damage paint and other equipment on an apparatus.

It has been proven that the booster tank is just as efficient as the chemical tank; it has about the same extinguishing power and is generally of a larger capacity. The cost of operation, also, is very much less and will not damage finished or delicate household goods; it may be refilled at a fire before returning to quarters and is ready for use, if a fire is located or received when company is returning.

J. C. Hagerty, Chief, Watsonville, Cal.: From experience we favor the booster tank over the chemical tank (soda and acid type).

We also have reasons to believe that the booster tank has several distinct advantages over chemical. Chemicals, of course, form a carbonic acid gas which tends to smother a fire, but in an open or ventilated place this does not prove true, and the only value the soda and acid serves is as a vehicle to carry the water from the tank to the fire. The booster tank gives a uniform pressure from the first to the last drop, and there is no soda to harden. It is only a matter of filling the tank with water, which is very convenient when it is necessary to refill which means less loss of time. More space can be devoted to water as a booster weighs less. The only disadvantage we find applies to both, that is, when a fire is under-estimated and larger lines are required, it becomes necessary to reel lines that have been used and there is a loss of time in getting apparatus to hydrant.

We believe, however, that after a chemical stream applied on an incipient fire, that is confined, the chemical has a small advantage in the carbonic gas. But the advantages of the booster tank offsets the chemical.

Henry J. Hyatt, Chief, Fitchburg, Mass.: I think the booster tank has the advantage in almost every way. We have been taught that the gas from the chemical tank was advantageous in extinguishing a fire. In practice I find that a good solid stream of clear water will extinguish a fire in nearly every case better than the chemical stream did. Clear water is much cleaner, the pressure is what you make it to suit conditions. The same pressure exists at 75 feet up as on the first floor, which a chemical tank would never do.

If the fire is a small one and only a small amount of water is used, you only have to replace that amount on returning to the station. With the chemical it means recharging. At our larger fires that we get outside of the city limits and away from hydrants, we have found the booster best, as we could nearly always find a well or small brook, and with our crew and a few outsiders, were able to carry enough water to fill the tank to keep a continuous stream on the fire as long as three quarters of an hour at times.

I have changed all of our apparatus over to booster pumps and feel they are the best improvement that has come about since the change from horse drawn to motor apparatus.

T. H. Mahoney, Chief, Westfield, Mass.: We prefer the booster tank for fighting fires.

The disadvantages of the chemical tank are the inability to carry soda and acid in quantities; the damage to clothing and furniture and the broken streams.

With the booster tank water it is easy to get in almost any locality and there is less damage to clothing, etc., and there is also a smoother stream.

I am using the same size hose on my booster tank, that I used on the chemical tank.

Albert E. Hiller, Chief, Plymouth, Mass.: We prefer booster tank and as a result all of our apparatus are equipped with them.

Water is much cleaner and does not cause the damage to furniture that chemicals do.

We get better results from the booster tanks than we do from the chemical tanks as we have a steady pressure until the water is all used.

James J. McMillan, Chief, Orange,

HERE IS THE PROBLEM

From experience in fighting fires, which would you prefer, a 35- or 40-gallon chemical tank on your apparatus, or a booster tank?

What do you consider the advantage and disadvantage of each?

Do you find that chemical lines do better work than small lines from the booster tank, or vice versa?

N. J.: I would prefer a booster tank of not less than 100 gallon capacity. The only reason for using chemicals is for furnishing pressure. When you have a pump on an apparatus you have all the pressure you need for a ¾ or 1 inch line. Where a chemical line is used there is always danger of the acid from the chemicals coming in contact with the 2½-inch hose. This acid eats through the jacket and destroys the hose.

Ray H. Hare, Chief, Yakima, Wash.: We prefer the booster tank. As to its advantages, there are many, such as taking a charged line into the fire. If it is not needed, there is no expense, waste or the disagreeable task of recharging the tank. If the line is needed there is that satisfaction of having uniform pressure from start to finish. The booster tank can be replenished while in use. We believe that using booster lines result in less damage to furniture, fabrics and fire apparatus.

We are now replacing two 80-gallon and one 40-gallon chemical tanks with booster equipment.

John L. Casey, Chief, Abington, Mass.: In this town we have 35- or 40-gallon chemical tanks and booster tanks on our apparatus.

We would prefer the booster tank to the chemical tank.

We find the advantage of the eighty gallons of water in the booster tank to be far more efficient than the 35- or 40-gallons of fluid in the chemical tank.

With the chemical tank the pressure drops near the end of the discharge and it is impossible to discharge all the fluid in the tank.

The booster tank can be supplied with water while the pump is in service and the apparatus kept in service for some time.

The disadvantage of the chemical is the cost of soda and acid over plain water for the booster pump; the damage caused by the acid to buildings and contents when used at fires; the damage to hose and paint on the apparatus caused by leaking couplings and fittings on the apparatus; the danger to members of the department caused by the handling of the acid and the damage caused by acid being tracked into the apparatus room on the shoes of the men and hose being dragged across the acid spots.

All our acid receptacles and 2½-gallon tanks are filled outside the apparatus room and we exercise caution to prevent the damage referred to.

We do not find that the chemical line will do better work than the booster. All chemical or booster lines are backed up with a 2½-inch line with a 1⅛-inch tip. The tip is removed from the nozzle and an adapter for a 1½-inch line attached. We use a ½-inch tip on the 1½-inch line.

We use this combination and have found it to our advantage many times as one man can handle the hose and this leaves more men available for other necessary work and less water damage is caused.

W. W. Mullins, Chief, Roanoke, Va.: We prefer booster tanks on our apparatus to the 35- or 40-gallon chemical tanks.

The booster equipped apparatus is less harmful to buildings and is capable of extinguishing fire. The disadvantage we find in chemical tanks on apparatus is that it is very hard to confine the fluid to the lines; it is injurious to the 2½-inch hose and to the paint on apparatus.

We do not think that chemical lines will do any better work than the small lines from the booster tank. We have nine pieces of apparatus equipped with 40-gallon chemical tanks and two pieces equipped with 80-gallon booster tanks. We are anticipating changing all chemical tanks for booster tanks.

R. S. Adams, Chief, Petaluma, Cal.: We have had a lot of experience with both chemical and booster tanks. We prefer the booster tank due to the advantage of it being so easy to operate and to refill. We have put out many big fires with our booster tank.

H. A. Thompson, Chief, Bismarck, N. D.: We prefer a booster tank of 80-gallon capacity. I think there is an advantage of having an 80-gallon booster instead of a 40-gallon chemical. There is not the trouble of recharging as you can connect the booster tank up to hydrant and refill much quicker than with the soda and acid chemical tank.

The disadvantage with soda and acid is that you have to be careful of the solutions around the apparatus and must see that it is kept off fire hose.

You can get any pressure you desire when using the booster tank which is the biggest objection of soda and acid.

As for difference in chemical lines or booster lines, I don't think there is any advantage with the chemical, as with either one, you want the liquid on the right place at the right time.

Wm. L. Ryan, Chief, Dubuque, Iowa: From my experience in fighting fires with both 40-gallon chemical tank and booster tank, I prefer the booster tank.

I consider the booster tank an advantage over the chemical tank. We have in our department pumping engines equipped with 40-gallon chemical tanks, while others are equipped with booster tanks. My objection to the chemical tank is the ever present danger of damage due to sulphuric acid, this danger being due to careless handling of the acid which may cause severe burns to the handler, or damage to his clothing, the damage to hose where tank is mounted over hose box, damage while extinguishing fire due to the use of too much acid, or upon beginning of discharge from tank before chemical reaction has taken place sufficiently for the soda to counteract the damaging effects of the acid, the coating left on garments, fixtures, furniture, etc., after chemical has dried.

It very often occurs after the use of chemical that rugs, etc., dry with a white coating after the chemical has been used. This may not cause any actual damage and proper cleaning will remove the effects mentioned, but people knowing that the chemical contains sulphuric acid feel that substances cause a real danger and that the insurance company covering the risk should replace the damaged article. Such damage, however, can be avoided by proper covering, but there are many departments which do not use covers to protect contents.

We are very careful in handling acid while recharging our tanks, but at least twice in my experience in our department extensive damage has been done to hose due to acid coming in contact with same when tank was first turned over. This is caused by a defective gasket in tank cover allowing raw acid to leak through the cover of tank.

As to chemical lines doing better work than small lines from booster, it is my opinion that the extinguishing effects of both are about equal.

Fred F. Knight, Chief, No. Tonawanda, N. Y.: I would prefer booster tanks on all apparatus. The booster is just as fast and you get a better stream. The booster can do everything a chemical can and better, and the first installation is the only cost. This city has four pumpers, that had been equipped 40-gallon chemical tanks and they were taken off and 120-gallon booster tanks were installed, in their stead.

Henry J. Schulz, Chief, Ashland, Ohio: From experience we have had, we would prefer the booster tank. With the booster tanks, we have ninety gallons of water and by shifting gears we can operate much quicker when at fires then with the chemical tank. With the chemical tank we lose too much time should the tank have to be recharged while at the fire.

From our experience we would prefer booster tanks to the chemical. We just had one of our trucks, which formerly had two chemical tanks, outfitted with a booster tank.

H. A. Klein, Chief, Hope Farm Fire Dept., Verbank, N. Y.: I cannot see any advantage a chemical tank on apparatus has over a booster tank. The booster will put out as much, if not more, fire than a chemical tank, gallon for gallon.

The disadvantage of chemical is the trouble of charging, storing and carrying extra acid and soda. There is also the danger of acid dropping on the hose which, in some cases, is carried beneath the chemical tanks on ap-

ADDITIONAL DISCUSSION IN THE NEXT ISSUE

Due to the large response to the questions on booster tanks versus chemical tanks, this Round Table will appear in two installments. The second installment will appear in the next issue.

paratus. Then there is the question of pressure. A booster line can be maintained at a constant pressure as long as water remains in the tank, whereas the pressure is gradually reduced with chemical as it is being used. The after effects of chemical makes a messy looking job and while, if mixed in proper proportions, are not harmful, water makes a cleaner job of small house fires where clothing and furniture are involved.

Where water can be carried in pails to be dumped in the booster tank, a longer time limit is available over the chemical, as unless two chemical tanks are carried and cross connected so as one can be recharged while the other is in use, you are handicapped at probably the critical moment. I am very much in favor of the booster tank.

* * *

ANSWERS TO PREVIOUS QUESTIONS

The following replies were received in answer to a previous question on the means taken to protect asylums and institutions against fire, and whether or not the institution inmates or members are tained to use the fire appliances:

S. H. Hansen, Chief, Duluth, Minn.: To protect the asylums and institutions in our city we had fire extinguishers, fire escapes and fire alarm systems installed. Regular inspections are made by the fire prevention Bureau.

This Bureau also supervises the maintenance of fire appliances and the janitors, Superintendents, etc., are instructed in the use and adaptability of carbon tetrachloride and soda and acid extinguisher. Demonstrations are given to help them to understand their use.

I suggest the following for safety in such buildings: That asylums, and homes for the aged be of fire resisting construction throughout and all storage places below the fire floor be sprinklered including the boiler rooms, coal and ash rooms; that no such building be more than two stories high; that all such buildings be equipped with fire alarm boxes and with direct circuit to fire stations.

L. D. Snell, Chief, Devils Lake, N. D.: We keep up a rigid inspection on our institutions such as schools for the deaf, I.O.O.F. home and hospitals and see that they have the required hose and chemicals in their respective places. At the School for the Deaf they have a pool that they flood with water in the winter for a skating rink. We have them keep this full in the summer also, and if a fire should break out we could pump water from this with two pumpers. We also have fire drills in all our institutions.

Joseph Waidelich, Chief, Topeka, Kan.: Our institutions within the city limits are not large enough to form a fire fighting unit, they, however, are carefully inspected regularly.

H. D. Shipman, Chief, Greenport, N. Y.: In one of our hospitals, new hose has been installed and a type of valve connected which is easily opened. We also had a separate fire alarm box with connections placed therein so that it was possible to send in alarm from any floor.

We are building in this town a half million dollar school house which will be equipped with fire alarm boxes on every floor and the latest devices in accordance with the state school law.

The only training we give in the schools are fire drills.

I suggest that both new and old public buildings be equipped with oil burners, to aid in making them safer. These oil burners should be of the approved type with a spring valve which operates at a temperature of 160° to shut off flow of oil in case of fire. All oily rags and waste material should be removed from premises at least once a week. Fire escapes should be kept clear. Buildings with open stairways should be provided with an automatic vent.

Chas. Andrews, Chief, Ann Arbor, Mich.: In all the hospitals in this city the tubular fire escape is used. It is a tubular slide extending from an upper story window to the ground. The slide takes the patient, mattress and all, to safety. Gas, smoke and flames may surround the tube without affecting the safe exit of the patient, neither is it interfered with by snow, ice or sleet. Doctors, nurses and internes may use it even more rapidly after the mattressed patients are out. The tube is thirty-seven inches in diameter, which would allow ample room for even the largest patients. In the event of fire, nurses and attendants would carry patients on the matresses to the upper opening of the chute and send them down, mattress and all, while other nurses would take them out on the ground level, where the handling would be an easy problem. The slope of the tubular fire escape is so gradual that patients would suffer no unusual sensation in the descent.

C. E. Touce, Chief, Chico, Cal.: I think the entire staff of asylums, homes and such institutions should be well drilled in fire protection and prevention.

J. M. Andrews, Chief, Sherman, Tex.: We do not have any asylums in our city, but we have two private hospitals and the attendants of these buildings are trained to operate fire extinguishers.

* * *

The following replies are in answer to a previous question on experience with manual and automatic gas shut-offs to prevent firemen from become asphyxiated by illuminating gas:

Otto Geisler, Chief Leavenworth, Kan.: We have not had much trouble from illuminating gas other than at a few homes. We have been fortunate in either being able to plug the leak or to enter the building to shut off the gas flow.

I am in favor of the manual shut-off as I believe that the automatic gas shut-off has a chance of becoming out of order.

Edward E. Fehr, Chief, Spring Valley, Ill.: I am in favor of a shut-off on the gas line. We have tried to have an ordinance passed to have the shut-off placed at the property line but we have failed.

J. C. Pierce, Chief, Woodstock, Ill.: I am in favor of an automatic gas shut-off. If necessary, an ordinance covering this could be passed.

Dexter G. Schultz, Ex-Chief, Bennington, Va.: This is a volunteer department. The gas and electric company are very prompt in helping us to shut off the gas service and to cut electric power lines.

This is a very serious question and should not be handled lightly by any community. If it were necessary to have such an ordinance, I do not believe there would be any trouble in getting one passed.

N. Y. F. D. Medals to Be Presented in June

Mayor James J. Walker will present, at exercises to be held June 17, the New York Fire Department medals awarded for meritorious acts of valor performed last year by members of the department. Ten of the many cases considered, are selected for exceptional heroism.

Officers and members of Hook and Ladder Co. No. 22 are awarded the Fire College prize for having performed all the evolutions of the school in the best time. The medal for discipline and general efficiency is awarded to Capt. W. J. Fitzgerald of Engine Co. No. 23, Manhattan.

Deputy Chief Joseph O'Hanlon, second in command of the forces in the Boroughs of Brooklyn and Queens, will receive the Administration medal for his design of a controlling nozzle serviceable for either 2½ or 1½-inch hose without detaching it and without the necessity of shutting off water supply while changing the size of the stream.

WILLIAM JEROME DALY.

Chief Hyatt of Fitchburg, Mass., Dead

Chief Henry J. Hyatt, of the Fitchburg, Mass., Fire Department, died on May 2 after a brief illness at his home.

He had been a member of the Fire Department for forty years and had served as Chief for the past fourteen years. He was a member of the Fire Chiefs' Club of Massachusetts, the New England Association of Fire Chiefs, the International Association of Fire Chiefs, the Massachusetts State Firemen's Association, the Fitchburg Firemen's Relief Association, Fitchburg Chamber of Commerce, and Rotary Club.

Chief Hyatt was born in Sherbrook, Canada, and moved to Fitchburg in 1890, being employed by the C. H. Cowdrey Company until he retired in 1918 after serving as superintendent of the firm for some years. He joined the fire force in 1892 as a call man with Hose 2. In 1905 he was appointed call chief and was made Chief upon the death of Chief Timothy F. Murnane in 1918.

He was sixty-seven years of age and is survived by his window and one brother.

HARRY BELKNAP.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Water Pressure

To the Editor:

Is there any more weight in a tank (of water) 60 feet high and 10 feet in diameter (per foot depth) than one that is 60 feet high and 4 feet in diameter?

C. H.

Answer: The pressure produced by water in a tank on the bottom of the tank is dependent solely upon the depth of the water, and is not influenced at all by the shape or size of the tank. In other words, if water is sixty feet deep, the pressure will be exactly the same whether the tank is ten feet in diameter or four feet in diameter. The pressure referred to is the pressure in pounds per square inch, pressure in pounds per square foot, etc.

In your question you refer to "weight." The weight of water on a square foot or square inch of area is the same thing as the pressure created by the same quantity of water on same area. The total weight, however, is a different proposition. The total weight of the water in a tank 10 feet in diameter and 60 feet high is over 6 times as great as the total weight of water in a tank 60 feet high and 4 feet in diameter, even though the pressure or weight per square inch is the same.

Solving Branched Layouts

To the Editor:

Will you kindly answer the following question:

How do you figure the required engine pressure with the following layout: A three-inch line from the engine with two 2½-inch lines leading off the 3-inch line, both lines having 1-inch nozzles; 40 pounds at the nozzles. 400 feet three-inch hose from engine, "Y" attached and two 250 ft. of 2½-inch lines off the three-inch.

Please explain in such a manner that a layman can figure the problem with different length layouts. Do you figure the friction loss in both the 2½-inch lines branching off the three inch line?

K. F. F.

Answer: There are two methods of solving problems involving 3-inch line branching into 2½-inch lines.

The first and more accurate method would be to find the discharge from each nozzle, then find the friction loss in the branch lines. Add the nozzle pressure to the friction loss in the branch lines and you get the pressure at the Y. Then find the friction loss in the 3-inch line. Add the pressure at the Y to the friction loss in the 3-inch line and you have the engine pressure.

This method is given in detail below:

The discharge $= 30 \times d \times d \times \sqrt{p}$

Where "d," is the nozzle diameter, and "p," the pressure in pounds per square inch at the nozzle.

Substituting values, we get discharge $= 30 \times 1 \times 1 \times \sqrt{40}$
$= 30 \times 1 \times 1 \times 6.32$
$= 189.6$ g.p.m., or 190 g.p.m. approximately.

The friction loss in 100 feet of 2½-inch hose $= 2 \times Q \times Q + Q$.

Where "Q" is the flow in 100 g.p.m.

Or friction in 100 feet of 2½-inch hose $= 2 \times 1.9 \times 1.9 + 1.9$
$= 9.12$ pounds.

Friction loss in 250' of 2½-inch hose is 2.5 x 9.12, or 22.8 pounds.

Then the pressure at the Y connection $= 40 + 22.8$, or 62.8 pounds.

The flow through the 3-inch line is equal to the sum of the flows through the two branch lines, or 2 x 190, or 380 g.p.m.

The 400 ft. of 3-inch hose is equal to $400 \div 2.6 = 154$ ft. of 2½-inch hose.

2.6 in the above is the conversion factor for changing 3-inch hose to 2½-inch hose.

Friction in the 100 feet of 2½-inch hose carrying 380 g.p.m. $= 2 \times 3.8 \times 3.8 + 3.8$.
$= 32.68$ pounds.

The friction loss in 154 feet of 2½-inch hose $= 1.54 \times 32.68 = 50.4$ pounds approximately. The pressure at the engine = the pressure at the Y plus the friction loss in the 3-inch line or 62.8 + 50.4 or 113.2 pounds.

The second method of solving the problem is the method of combining the lines into a single line of 2½-inch hose, combining the nozzles and then solving for engine pressure.

Two parallel lines, 250 feet long each, of 2½-inch hose equals $250 \div 3.6$, or 69.5 feet of 2½-inch hose in the line; 3.6 above is the conversion factor for changing parallel lines to a single of 2½-inch hose.

In the first solution, it was shown that 400 feet of 3-inch hose = 154 feet of 2½-inch hose.

Then the total length of a single 2½-inch hose in the layout is 69.5 + 154 or 223.5 ft.

To combine the nozzles, we find what size nozzle is approximately equal to the two nozzles. This may be done by squaring the diameter of each nozzle, adding the two squares and then abstracting the square root. We find it to be 1.414. Therefore the nozzle equivalent approximately to the two 1-inch nozzles is 1⅜-inch in diameter.

Now solve for the engine pressure by the Underwriters' formula:

E.P. = N.P. x (1.1 + K L)
L = $223.5 \div 50$, or 4.47
K, for 2½-inch hose and 1⅜-inch nozzle, = .341
E.P = 40 x (1.1 + .341 x 4.47)
= 40 x (1.1 + 1.524)
= 40 x 2.624, or 104.96, or 105 gallons per minute.

There is a difference between the two values secured for engine pressure, but the difference is due to the different formulas employed, each one being only approximately accurate.

Effects of Extinguishers

To the Editor:

Would you please tell me what effects the following fire extinguishers have on fire: soda and acid; carbon tetrachloride; foam; and a comparison of their efficiency with water. Does the soda and acid type have any effect on fire that water does not have?

What is meant by three-ply fire hose?

A. L. F.

Answer: There are only two practical methods of extinguishing fire, namely, by cooling materials to a point below their reignition point and by smothering, i.e., excluding oxygen from the zone of combustion.

The soda and acid extinguisher exerts its extinguishing effects by cooling. There is a very small smothering effect due to the discharge of a small quantity of carbon dioxide with the stream, but it is negligible except in closely confined fires, such as in partitions, boxes, etc.

Carbon tetrachloride extinguishes by smothering, due to the fumes therefrom diluting the oxygen content in air. In other words, the mixture of carbon tetrachloride and air contains insufficient oxygen to sustain combustion.

Foam extinguishers are effective almost entirely through smothering, although there is a small cooling action as well.

A comparison between the three mentioned types of extinguishers and water would be difficult to make, for each type of extinguisher has a very definite purpose.

As far as soda and acid streams and water streams are concerned, there is very little difference, due to the fact that there is but a small amount of bicarbonate of soda remain-

ing in the stream and a negligible quantity of carbon dioxide gas.

Carbon tetrachloride is used only for incipient fires and there is no means of making an accurate comparison between its effect and that from water.

Foam, on the other hand, is employed almost entirely on fires in inflammable liquids, the type of fires which are extremely difficult or impossible to extinguish by water streams.

By three-ply fire hose is meant fire hose made up with a jacket consisting of three layers. Three separate jackets may be woven and one inserted into the other or three may be woven and interlocked.

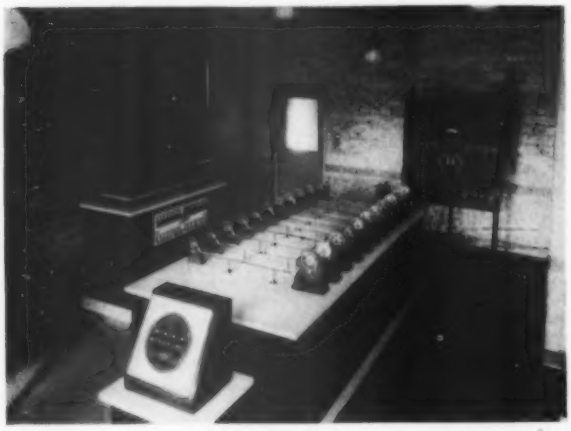
MODERN FIRE ALARM SYSTEM INSTALLED IN EAST PROVIDENCE

Town Voted $219,000, Which Covered Fire Alarm Improvement, a New Headquarters Building and Purchase of Fire Apparatus

By Harry Belknap

EAST PROVIDENCE, R. I., a town of 33,000 population has just completed in one step what most communities of its size would take years to acquire—a $219,000 Fire Department improvement.

It started its growth in two directions, one in a residential way when the adjoining city of Providence became quite



Operating Room of the Central Fire Alarm Office at East Providence, R. I.

crowded, the other in an industrial way because of its exceptionally good location with regard to transportation and distribution.

Upon taking charge of the Fire Department, Chief Griswold carefully studied its needs, then abided his time until 1930 when he launched an educational program that was successful in interesting the townspeople and officials to the extent that the first Fire Committee was appointed at the annual town meeting to investigate what improvements were needed to secure a better insurance rating. Reporting back at the next financial town meeting, the Committee secured an appropriation of $219,000 to carry out their recommendations. Under the supervision of a second Fire Committee of three men including Chief Griswold, two new fire stations were built, an existing fire station was remodelled, a new fire alarm system installed, a new 1,000-gallon pumper and another hose wagon purchased, fifteen men added to the department to make a total of thirty and three quarters of a mile of new pipe line added to join together the town's two water systems during large fires.

Fire Alarm System Installed

Until recently East Providence depended upon a fire alarm system of only eight boxes installed by the Gamewell Company more than thirty years ago. This antiquated and inadequate system has been replaced by a complete new fire alarm system of 132 Peerless 3-Fold Fire Alarm Boxes (including public street boxes and private boxes on school houses, institutions and factories) new underground and overhead cables, engine house recording sets and a modern central office. East Providence has the distinction of being the first municipality in the country to install 100% of the new 3-Fold fire alarm boxes.

The new central office is installed in a separate section adjoining the fire headquarters building. It is of fire resistive construction and is set off from the latter building by means of a separate wall, without any connecting door. This section is divided into two rooms one for apparatus and the other for battery. The apparatus installed consists of the following:

Two 8-circuit rectifier and low current supervisory panels; one 16-circuit protector board; one 12-circuit automatic repeater; one repeater switching panel; one Peerless transmitter; one two-speed transformer; one recording unit of ten Excelsior registers, ten Peerless take-up reels, one 2-circuit Nonpareil register, one Excelsior time stamp with clock, one Nonpareil take-up reel (mounted on marble base); 240 cells B.T.I.S. battery, and a 90" 4-shelf metal battery rack for floor wiring.

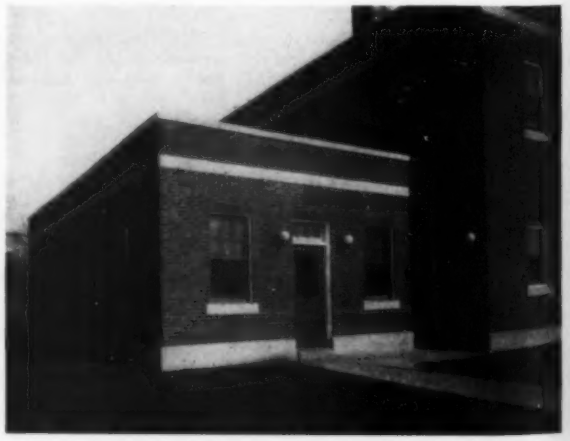
The apparatus is arranged for "Class B" automatic operation but can be later changed over to manual operation as the town grows. One of the features of the central office is the current supply consisting of rectifier—floating battery. With this set-up only one-half the usual battery is required. It is kept on float with low current rectifiers. Two high rate rectifiers are available for periodic booster charges in the event of some unusual drain on the battery. The principal advantage of this form of current supply lies in its economy over previous methods.

Outside alarm devices consisting of a type "B" Diaphone on Station No. 2 in the south end of the town and a steam whistle on the Rumford Chemical Works in the north end, are used to call out the volunteers—in the south end on every first alarm, and in the north end only on multiple alarms. Coded box signals are sounded on both whistles by means of a Gamewell two-speed transformer at the fire alarm central office.

The entire fire alarm system was engineered, manufactured and installed by the Gamewell Company.

Training and Building Inspection

During the winter months, bi-weekly indoor drill sessions are held covering locations of fire alarm boxes, streets, house numbers and hydrants, the size of water mains at each hydrant, names and location of equipment on motor apparatus, etc. When the weather is fine, outdoor drills in the use of hose, ladder, pumps from drought and hydrant, booster equipment and smoke masks replace the indoor "skull practice." The volunteer companies are trained right along with the permanent force. Chief Griswold is planning a drill tower and expects to have it erected in the near future. An average of 100 building inspections a month made by the department, aid in familiarizing the firemen with building layouts and hazards, and result in the cleaning up of combustible waste.



Exterior of the New Fire-Resistive Fire Alarm Central Office

This building adjoins the recently completed fire headquarters, but is separate from it. There is no passageway through the two buildings.

PITTSBURGH FIREMEN FIGHT CHURCH BLAZE IN HOMESTEAD

Volunteer Firemen Unsuccessful in Combating Blaze That Started in Basement of Church —Chief Smith of Pittsburgh in Command

By William E. Patterson

FIRE, which started from an unknown cause, in the basement of the Mary Magadalene Roman Catholic Church in Homestead, Pa., completely destroyed the large structure and for a time threatened to destroy the three-story brick rectory adjoining the church on the south, and a frame school house in the rear. The municipality is located in the borough adjoining Pittsburgh.

Fire was first discovered burning in the rear basement of the church near the furnace. Homestead firemen were called by telephone. When they arrived in command of Chief Samuels, they found the building heavily charged with smoke, with no fire visible as they made their way to the basement. Chief Samuels immediately sent for the rest of the Department (Engine Company No. 2).

Donning smoke and gas masks they attempted to crawl with their lines of hose to the source of the flames, but were unable to make much headway in checking the fire which was steadily gaining, filling the basement with stifling and choking clouds of smoke. Firemen were driven back from their posts.

After battling with the fire for some time, the Chief sent out calls for aid to the Borough of Munhall adjoining Homestead on the East, West Homestead on the West and the Borough of Rankin, located across the Monongahela River, from which Boroughs the volunteer fire companies promptly responded.

While the Homestead firemen with these reinforcements continued their battle in the basement to reach the seat of the fire, for a period of nearly two hours, flames continued to spread in spite of their combined efforts.

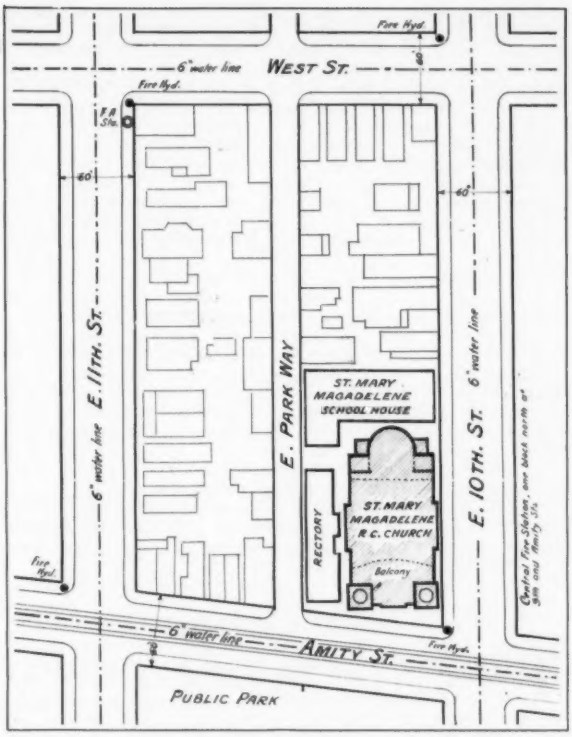
Heavy iron gratings made of bar iron approximately one inch in diameter, and screens on the basement windows, hindered the firemen in their work of reaching the fire in the basement with their streams from the outside.

Realizing that they were not making any headway in checking the spread of the flames, Chief Samuels of the Homestead Department appealed to Chief Smith of the Pittsburgh Fire Department.

Chief Smith, immediately ordered Engine Company No. 13 and Truck Company No. 13 to respond to the fire.

This call was followed by three others for additional help, which Chief Smith complied with, sending Engine Company No. 31 at 4:44 p.m., Engine Company No. 24 at 5:45 p.m., and Engine Company No. 4 at 5:50 p.m. Apparatus responding consisted of three American-LaFrance 750-gallon triple combination pumpers, one combination hose and chemical wagon, and one city service hook and ladder truck, with a combined fire fighting force of nineteen men.

Chief Smith after receiving the additional calls for assistance, proceeded to the scene of the fire from his home and upon his arrival, immediately took personal charge.



Arrangement of Streets and Buildings Near the Church That Was Razed in Homestead, Pa.

Shortly after appealing to Pittsburgh for assistance, Chief Samuels of the Homstead Department was overcome by smoke and was taken to the Homestead Hospital for treatment.

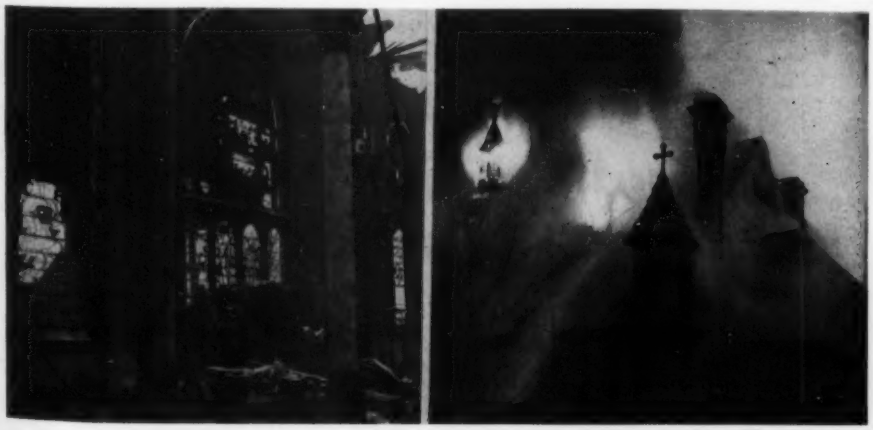
When the Pittsburgh Fire Companies arrived one by one, they found the entire neighborhood filled with heavy cutting smoke which swept down into the streets from the burning church.

The Pittsburgh Firemen immediately ran their lines into the basement where they found the fire raging fiercely in the rear and spreading up to the main auditorium in the rear of the altar.

After battling with the flames for about twenty minutes the fire drove all the Pittsburgh, Homestead and volunteer firemen out of the basement to the street.

After being driven out of the building, some of the Pittsburgh Firemen succeeded in cutting a hole in the floor of the auditorium and placing a revolving cellar spray into service, but their efforts were in vain, the fire soon becoming so hot that they had to vacate the building.

It was reported that during this stage of the fire, some of the volunteer firemen broke a huge art stained glass window in the front of the church to allow air into the building. With the inrush of air, the whole church almost immediately became involved in flames, as the hot smoke ignited, turning the building into a roaring furnace and dooming it to complete destruction. Nothing remained of the beautiful structure but the blackened walls after the fire had done its work.



Views of the Church After Fire Broke Out

Left, ruins of a section of the interior. Costly stained glass windows were destroyed and elaborate interior decorations were ruined. Right, fire enveloping one of the steeples of the church.

Pittsburgh Firemen, turned their attention to saving the rectory and the school house, and with five powerful pumper streams, they succeeded after a hard fight, in keeping the fire from spreading to surrounding property.

Shortly before 7 o'clock one of the burning steeples tottered and collapsed with a mighty crash to the street below.

When the steeples toppled the flaming debris buried lines of hose and made the side-walk and a portion of the street in front of the building a seething furnace. Chief Smith, when he saw that the burning steeple was getting in a dangerous condition, ordered his men to remove the pumper of Engine Company No. 13, which was connected to a fire hydrant directly in front of the burning building, to a place of safety.

One by one the five large bells located in the belfrys at the base of the burning steeples, crashed down through the towers to the basement as the supports burned away.

The burned building which faced on the west side of Amity Street, had a frontage of seventy-five feet and extended along Tenth Avenue, a distance of one hundred and fifty feet to the rear. It was constructed of light buff colored brick, with stone trimmings, a steep slate covered roof and two slate covered steeples, each surmounted with a large cross, which extended a distance of 150-feet above the street. The auditorium, with its beautiful furnishings and costly decorations had a seating capacity of 1,000 persons.

The building was erected thirty-seven years ago, and at the time of the fire, was valued at approximately $200,000. It was the third church edifice that the St. Mary Magadelene Congregation has lost by fire.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the month of April. These figures, compiled from telegraphic reports are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending April 30	Loss in Thousands of Dollars
Pass Christian, Miss.—Pass Christian Tarpon Club, at Goose Point, Cat Island	25
Little Rock, Ark.—Business and residential property, Spring St.	45
Gretzville, N. Y.—Plant of Peter Gager Dairy Co.	25
Boyertown, Pa.—Paint dept. of Boytertown Auto Body Works	25
Pittsburgh, Pa.—Plant of Duquesne Oil & Supply Co.	25
N. Sydney, Mass.—Storage plant of Leonard Fisheries Co.	200
Schuylerville, N. Y.—Store of Eagle Clothing Co., destroyed	45
Wheeling, W. Va.—Dairy bldgs. of Hilltop Farm, destroyed	25
N. Adams, Mass.—Store of New England Furniture Co.	25
Prichard, Ala.—Plant of Burton Box Co., destroyed	25
Manor, Tex.—Two rows of buildings on Main Street	65
Cedar Rapids, Iowa—Hangar and four planes at airport, destroyed	25
Moncton, N. B.—LeBlanc drug store, St. George St.	25
Elkridge, Md.—Dwelling of Chas. A. Geatty, destroyed	50
Catlettsburg, Ky.—First Baptist Church, adjoining property	65
Dunn, N. C.—Plant of Eagle Furniture Co., destroyed	25
Bowers Beach, Del.—Cottages and stores, destroyed	65
Caruthersville, Mo.—Storage unit of S. W. Missouri Compress Co.	165
Milwaukee, Wis.—Building of Lemke Electric Co., damaged	65
Rocky Mount, Va.—Plant of Bald Knob Furniture Co., damaged	160
Bloomington, Kan.—School building, destroyed	25
Easthampton, Mass.—Oberlander bakery, adjoining property	80
Wayland, N. Y.—LaPaliano dry cleaning establishment, adj. property.	25
Denver, Colo.—Elevator of Prides of the Rockies flour mills	200
Nashville, Tenn.—Public school building on Broad St.	150
Bessie, Okla.—Packing plant of Gerlach Produce Co.	25
Enid, Okla.—Business section damaged	80
Greenwich, Conn.—Residence of Graham Sumner, destroyed	65
Sheldon, Va.—Store of H. H. Mowers, adjoining property	65
South Omaha, Neb.—Plant of Allied Mills Co.	250
St. Louis, Mo.—Dwelling of J. G. Fleck, Midland Blvd.	45
High Point, N. C.—Automobile storage warehouse, Washington St.	25
Kendallville, Ind.—Economy Meat Market, adjoining property	50
Somerville, Mass.—Society Hall bldg., and Eberle block	150
Waterville, Me.—Dunham Clothing Store, other business property	80
Bellows Falls, Vt.—Windham Hotel, destroyed	50
Columbia, S. C.—State Penitentiary Chair Factory, destroyed	125
Winchester, Ohio—Bldg. of Dryson Product Co., adjoining store	65
Atlanta, Ga.—S. A. E. Fraternity House at Emory University	25
Toronto, Ont.—Hillcrest public school, Bathurst St.	25
Pawtucket, R. I.—Weisman block, damaged	30
Randolph, Wis.—Smith store and Davis flour whse., destroyed	25
Alton, Mo.—Famous Cafe, destroyed	25
Shreveport, La.—Property of Dr. P. W. Oden, Mansfield Rd.	45
Rush Springs, Okla.—Public school, adjoining stores	45
Statesville, N. C.—Miller building, damaged	50
Allentown, Pa.—Plant of Freihofer Baking Co., destroyed	50
Lutherville, Md.—Barn and thoroughbred horses on Lambert estate.	250
Flint, Mich.—Several business establishments	65
Kinston, N. C.—Wheat Swamp consolidated school, destroyed	40
Cedar, Kan.—City hall, adjoining property	25
Endicott, N. Y.—Business property of Joseph Freedman	125
Governors Island, N. Y.—Army post garage and supply shop	90
St. Stephen, N. B.—Dwelling of William Robinson	45
Port Stanley, Ont.—Hopkins Casino	75
Glace Bay, N. S.—Brunswich store and apt. block	25
Lee, Mass.—Main Street business property	30
Haverhill, Mass.—Garage of Wing Transportation Co.	80
Waterloo, Ia.—Several business establishments	80
Water Valley, Miss.—Oak Hall Hotel	40
Blue Island, Ill.—Warehouse of W. W. Koehler Paper Co.	35
Tacoma, Wash.—Plant of Puget Sound Mfg. Co., damaged	125
Logan, W. Va.—Business and residential property	40
Escanaba, Mich.—Terrace Gardens Dance Hall, adj. property	30
Texarkana, Ark.—Store of Reeves Furniture Co., destroyed	35
Greagyville, Ky.—Residence of Mrs. H. G. Barney, destroyed	25
Modesto, Calif.—Plant of Poultry Producers Assn., destroyed	60
Gary, Ind.—Store of Globe Clothing Co.	65
New Castle, Pa.—Wood building and Dun block, destroyed	350
Liberty, N. Y.—Belmont Hotel, destroyed	25
Lancaster, N. H.—Rialto theatre, adjoining property	25
McKeesport, Pa.—Apartment property owned by Dr. N. Sunstein	30
Lafayette, La.—Plant of Lafayette Compress & Warehouse Co.	200
Falls City, Neb.—Dorrington-Towle building, damaged	25
Sheldon, Iowa—Warehouse owned by Central Grain Corporation	25
Florence, Ala.—Property in business district	25
Bolivar, Tenn.—Dorris Drug Co. store and adjoining property	25
Centerville, Iowa—Dwelling of Tony DeZorzi, destroyed	40
Red Oak, Iowa—Grand theatre, destroyed	50
Gadsden, Ala.—Lasseter automobile agency, damaged	45
Greenville, S. C.—Evangelist Baptist Church and adj. prop., destroyed	25
Red Wing, Minn.—Warehouse and elevator of La Grange Milling Co.	25
Ridgeland, S. C.—Ellis & Quarterman Lumber Co. Mills and adjoining property	200
Baltimore, Md.—Maryland Conservation Dept. flagship, the Tech, and adjoining vessel	80
Norristown, Pa.—J. J. Ferry garage, Main St.	25
Alexandria, Tenn.—Lester's department store, destroyed	25
Carrabelle, Fla.—Post office, hotel, adjoining property	80
Belle River, Ont.—Summer home of Frank Cook of New York	40
Dan Diego, Cal.—Apartment property of A. Berenson, adj. bldgs.	45
Los Angeles, Cal.—Property of Lowe Baking Machinery Sales Corp.	25
Jackson Springs, Miss.—Jackson Springs Hotel, destroyed	65
Erie, Pa.—Store of M. Masiroff & Co., destroyed	50
Nahant, Ia.—Ice plant of Davenport Ice & Coal Co.	80
Malden, Mass.—Apartment building, destroyed	125
Lake Providence, La.—Missouri Pacific R. R. depot, destroyed	25
Washington Island, Wis.—G. O. Mann store, adj. property	25
Randolph, Wis.—Smith store and Davis flour mill	25
Evansville, Ind.—Milling plant of Mead-Johnson Co., destroyed	200
Etna, Pa.—Glenshaw Glass Co. warehouse	35
Graysalake, Ill.—Farm property of Mrs. E. L. Sears	40
Shreveport, La.—Barn on Pugh plantation, Hart's Island Rd.	25
Dallas, Tex.—Property occupied by Samuel Bingham's Son Mfg. Co.	45
Millville, N. J.—Methodist Church, damaged	25
Newark, N. J.—Warehouse of Reliable Furniture Co.	65
Collingswood, N. J.—M. E. Church, damaged	75
Lexington, Ky.—Barn and 14 horses at Association Race Course	45
Pass Christian, Miss.—Property of C. N. Grovner of Memphis, Tenn.	35
Salina, Kan.—Bus station of Cardinal Stage Line, destroyed	40
Pampa, Tex.—Plant of Texas Elf Carbon Co., damaged	80
Ruston, La.—Milton Kidd building, damaged	25
Rensselaerville, N. Y.—Residence of Mrs. G. H. Campbell	80
Far Rockaway, N. Y.—Corporation Yard Building, destroyed	25
Conneaut, Ohio—Knights of Pythias building	65
Merigold, Miss.—Gin mills of Smith and McCarty, destroyed	30
Waubaushene, Ont.—Bakery of Philip Thiffault, adj. property	35
New Canaan, Conn.—Property of J. C. Minor of New York	30
Conneaut Lake Park, Pa.—Hotel and 3 concession buildings	25
Wilmington, Del.—Plant of Huber Baking Co., damaged	40
Fayetteville, Pa.—Max Goetz garage and 31 cars destroyed	40
Montgomery, Ind.—Tippecanoe Township Consolidated School	25
Monessen, Pa.—Plant of Golden Anderson Valve Co., destroyed	30
Passaic, N. J.—Fair department store, adj. property	30
Bridgeport, Conn.—Grain whse., adj. property, North End	25
Medford, Ore.—Plans of Bardwell Fruit Co. and Rogue River Lumber Co.	125
Wingate, N. C.—Administration bldg. of Wingate Junior College	45
Vancouver, B. C.—Woodworking shop of J. L. Northey & Sons	25
Augusta, Me.—Property on Lake Cobbesseconee of H. L. Ottman of New York	35
Bloomfield, N. J.—Netherwood Terrace, adjoining property	25
Burlington Island, N. J.—Summer homes and amusement bldgs.	80
San Francisco, Cal.—Property of Mrs. A. McCartney, Bay Farm Island	80
Ottawa, Ont.—Government property at 327-33 Wellington St.	70
Memphis, Tenn.—J. R. Whalen warehouse, damaged	25
Hermon, Me.—Town hall and Odd Fellows Hall	45
Big Bend, Wis.—Stores in McKenne bldg., adj. dwelling	25
Hesperia, Mich.—High school building, destroyed	45
Borger, Tex.—Golden Rule Dept. store, damaged	25
St. Stephens, S. C.—Lumber yard of Brooklyn Cooperage Co.	65
Olive Hill, Ky.—Property of O. L. Kerns, Midland Trail	25
Kitchener, Ont.—Plant of Wunder Furniture Co., damaged	80
San Francisco, Cal.—Warehouse of H. R. Bowen Furniture Co.	75
Memphis, Tenn.—Warehouse of McCallum & Robinson, damaged	275
Santa Cruz, Cal.—Moose building destroyed, Pacific Ave.	65
Fremont, Neb.—Plant of Chappell Printing Co., damaged	40
Deseronto, Ont.—Business block bounded by George and Main Sts.	80
E. Northport, N. Y.—E. Northport Pickle Works, destroyed	40

The Cover Illustration

Most manufacturing plants contain materials that are readily flammable and which thus increase the fire hazard. The cover illustration shows tons of baking materials going up in smoke when a bakery was destroyed by fire in Allentown. Pa.

Box 22 Association Formed in New Haven

Seven men interested in fire protection and prevention have formed the Box 22 Association in New Haven, Conn. Meetings are held monthly. John T. Sloan was elected Chief of the new organization and E. R. Potter, Secretary-Treasurer.

PARADES and CONVENTIONS ARE COMING! LOOK YOUR BEST! GET YOURSELF A NEW BADGE

Will you be "spic and span" when you swing into line in your next parade? Will you look your best when you renew old acquaintances at coming conventions? Always looking your best reflects favorably on the service to which you have devoted your life.

Your badge is an important detail. It should always look new. If it doesn't, why not get yourself a new one? Our new catalog gives you a wide range of fine designs to select from.

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COMBINATION BRASS NOZZLE FOR 50 FOOT STREAM OR LONG COARSE SPRAY
NEW COMBINATION HANDLE FOR CARRYING TANK AND FOR HOLDING PUMP
Pat. applied for
STRONG AND DURABLE
EXTRA HEAVY TANK IS CURVED IN SHAPE TO FIT BACK SNUG AND FLAT
ALL TANK JOINTS LOCKED AND SOLDERED
BUILT STRONG
INDIAN
TANK MAY BE CARRIED IN THE HAND OR ON THE BACK

A patented handle on top of the tank permits carrying INDIAN about by hand or it may be carried on the back for operation. Tank is extra heavy and curved in shape to fit the back like a pack basket. Only clear water is used.

PHOTO shows INDIAN FIRE PUMPS being used to extinguish a fierce forest and brush fire in Norton, Massachusetts. Here was another instance when the use of these quick action portable extinguishers saved acres of timber and thousands of dollars worth of property.

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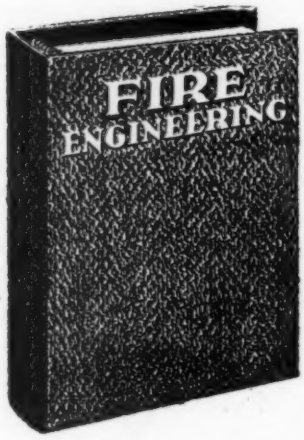

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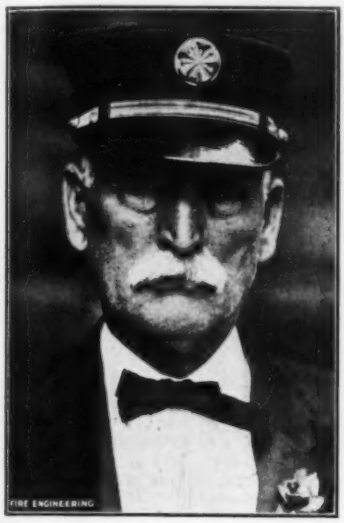
Ex-Chief Jenkin Daniels Dead

Jenkin Daniels, Fire Chief Emeritus of Columbus, Ohio, died April 5, at the age of seventy-nine. For several weeks previous to his death, he was confined to his bed. He had served the city for forty-four years before he retired on March 17, 1926.



The Late Ex-Chief J. Daniels

He joined the department in 1882 and two years later was advanced to Captain. For more than twenty years, Mr. Daniels was assistant to Henry Heinmiller, then head of the Fire Department. When Charles J. Lauer died, Daniels was advanced to head of the department and he served at that post until he retired.

Chief Daniels was a thirty-second degree Mason, a Shriner and was active in the affairs of this fraternal order.

Protests Cut

The Council of Canton, Ohio, has filed protest against the closing of three city fire stations necessitated by an enforced 60-day vacation for members of the Fire Department. Under the plan now in operation, firemen were ordered to take sixty days off without pay on an alternating schedule. The fire staff has been reduced to 80 as against recommendations made by Underwriters that there be 106 men.

CORRESPONDENCE

Marking Fire Hydrants

To the Editor:

We have had some correspondence in regard to flow test, and marking of hydrants for Fire Department use. I was greatly interested in the article in the March issue by Chief Scott Power of Zanesville, Ohio.

In reading this article the thought occurred to me that the time has arrived for a national uniformed system of marking fire hydrants, and I believe there is no better medium for advancing this idea to Fire Departments, and water companies than FIRE ENGINEERING.

And I, personally, would like very much to see your magazine push this thing to completion for a uniform method, both in flow test, and hydrant markings.

Very truly yours,
J. W. RANDLETTE,
Chief, Fire Department, Richmond, Me.

The New York Examination

To the Editor:

Allow me to express to you my sincere admiration for your courage in your outspoken article "With the Editor" in the current issue of your splendid magazine. Although I am only a small-town chief, I feel that some of the questions asked in the New York examination were ridiculous and beyond any candidate's ability to answer them. An expert (in his line) would have had trouble with them.

However, please do not misconstrue me, as I have no bone to pick or axe to grind with the Underwriters as they have always cooperated with me to the utmost extent and I hold them in high regard.

GEO. CARPENETO,
Asst. Chief, Bellefonte, Pa.

EDITOR'S COMMENTS: We agree with you on the questions asked on the examination. We also agree with you in what you say regarding the National Board of Fire Underwriters. That organization, as is well known, has, for the past quarter of a century, worked in the interests of fire prevention and protection. And even in their work with municipal Fire Departments they have accomplished a tremendous amount of good. For example, no organization has done more to insure permanence of office of Fire Department officers than the National Board. They have always stood ready to cooperate in any work in the field of municipal fire protection, as well as in industrial protection, where they felt they could serve. We may differ with them on some questions, but we can sincerely say that their engineers are truly friends of the fire service, and have never been found wanting when called upon. Incidentally, it is of interest to note that insurance companies (members of the National Board) were the first in this country to establish an organization of paid men for fighting fires; they were the first to establish salvage corps. And now, the Underwriters' Laboratories, under the direction of the National Board of Fire Underwriters, is constantly at work conducting tests and establishing standards for fire safety, designed to eliminate many of the present causes of fire.

Assisted at Penns Grove, N. J., Fire

To the Editor:

In reading the article in the last issue of FIRE ENGINEERING, describing the Penns Grove, N. J. fire I find you did not mention any rural Delaware company as having responded.

The Minquadale, Del., Company in particular was present and pumped more water than any other out of town company, as we were the only one equipped with three hard sections of hose, enabling us to reach the Delaware River at low tide. The Newport, Hollaway Terrace, Five Points and Talleyville Companies, all of Delaware, were there also, and rendered valuable service. Your truly,

THE MINQUADALE FIRE COMPANY.
Fred Brown, President.

Fire Fighters Are Laundry Men

Members of the Fire Department of the Rouge plant of the Ford Motor Company, Dearborn, Mich., in addition to their fire duty take care of the flat work of the plant laundry. The laundry handles the towels, polishing rags, etc., used by the working force. The plant firemen, however, are not required to operate washers and driers.

Pirsch Announces a New Pumper Series

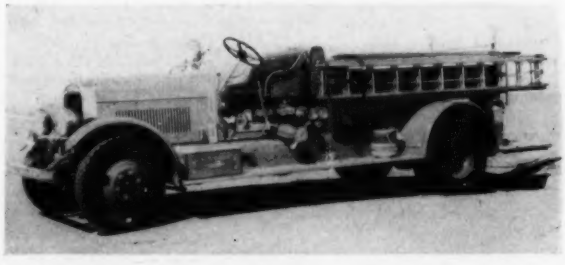
A new pumper, of the centrifugal type, has been placed on the market by Peter Pirsch & Sons Company, Kenosha, Wis. It is known as Series 15 and is manufactured in sizes of 500, 600 and 750-gallon capacity.

A 750-gallon pumper of this series, recently completed a 12-hour test conducted by an engineer of the National Board of Fire Underwriters. The apparatus has a two-stage series parallel centrifugal pump.

During the six-hour capacity test, the pumper delivered on the average, 756 gallons per minute at 126 pounds pressure. The engine speed was 1,543 r.p.m., and the pump speed, 2,993 r.p.m.

The motor, in this particular job, developed 121 horsepower at 2,400 r.p.m. The standard requirements of the National Board is not more than eighty per cent of the peak motor speed at capacity.

During the three-hour 200-pound test, the average discharge was 378 gallons per minute at 206 pounds net pump pressure. The engine speed was 1,431 r.p.m., and the pump



750-Gallon Pirsch Pumper of Series 15

speed 2,776 r.p.m. During the three-hour 250-pound test, the average discharge was 251 gallons per minute at 258 pounds pressure. The engine speed was 1,561 r.p.m., and the pump speed, 3,028 r.p.m.

Fire Protection for New Subway Shops

(*Continued from page* 193)

punching registers, and take-up reels, to automatically record the date and time of signals. This makes an automatic permanent record which can be kept indefinitely. There is also an arrangement that if a signal is actuated, a bell will operate and cannot be stopped until some attention is given

Special Cabinets Contain Supervisory Service and Valve Alarm Instruments

to it by the local operator. However, as these signals automatically record in the central office of the National District Telegraph Company, it is used as a secondary check-up only in case that independent operation is desired or if telephone conductors used for transmitting the signals between this location and the N. D. T. Co. become disrupted, in which case an operator can be dispatched to receive the signals at the plant without impairing the service in any way.

A special gong panel is used for supervising the gong and local fire alarm feature only.

Because of the large area of the property, a print was prepared of the yard with the location of every fire alarm box, water control valve, alarm valve, gong, etc.

Every fire alarm box, gong, alarm valve, actuating device and gate control supervisory device carries a number for identification. This number, also, is used to simplify the circuit arrangement, making it possible to locate any trouble with the minimum delay. It also facilitates the correct reporting of the trouble by employees who may not know how to describe the exact location.

The cards used for designating the locations of the fire alarm boxes are of a special design made of steel and copper, the code cards being under glass and bound so that it is impossible for dust particles to get into the cards.

Sub-Terminals Throughout Premises

Due to the large area, numerous sub-terminals throughout the premises were necessary. Each one of these have connecting blocks and the wires and cable conductors are permanently laced to make a workmanlike installation. In the cover of each of these terminals, there is a schematic diagram showing exactly where the wires and cables come from and where they go to, also indicating the sequence in which the various devices are connected. This also makes it possible for troublemen and inspectors to locate trouble without it being necessary to carry a large number of blue prints with them.

Special steel cabinets, which are absolutely dustproof and waterproof, were used to contain various supervisory service and valve alarm instruments. These instruments are grouped throughout the property. There are seven groups of these instruments located at various points. In each one of these cabinets is installed complete diagrams of the services connected to the device, as well as a schematic diagram of the instrument itself, which will also reduce the period of locating troubles.

The entire installation of these services has the approval of the New York Board of Fire Underwriters, New York Fire Insurance Exchange, and all devices are approved by the Underwriters' Laboratories. The entire installation was installed under the specifications and supervision of the Signaling Division of the Board of Transportation, New York City, and it has passed exceptionally rigid requirements.

Chief Hurley of Holyoke, Mass., Injured

Chief Patrick J. Hurley, of the Holyoke, Mass., Fire Department, was seriously injured in an accident on April 28 when his car was overturned in a collision with another automobile while the Chief and his driver were responding to an alarm. The driver escaped with minor injuries, but the Chief suffered dislocation and fractures of the shoulder as well as multiple contusions and shock. Chief Hurley is a former President of the New England Association of Fire Chiefs.

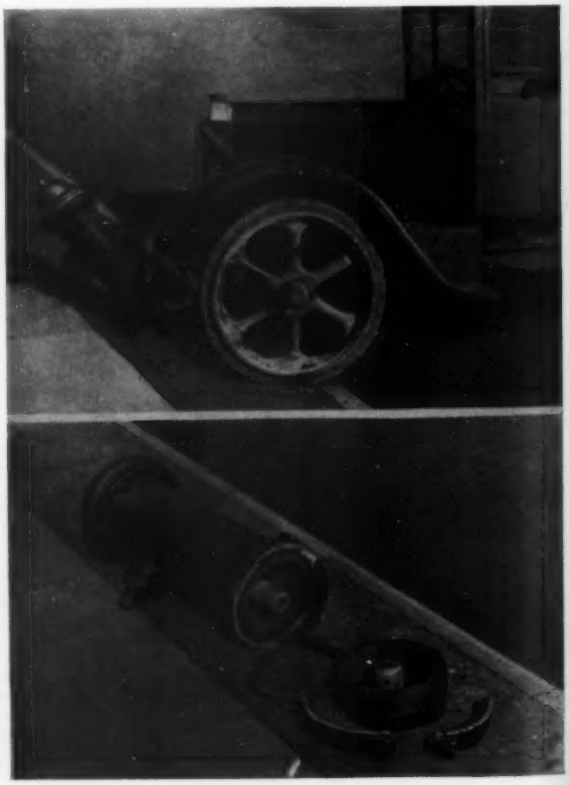
HARRY BELKNAP.

New Fire Hydrant Design

A fire hydrant which can be placed back into service shortly after it is damaged by impact with a truck, has been developed by the Kennedy Valve Manufacturing Company. The new design is being marketed as the Kennedy Safetop Fire Hydrant.

A safety breakable section is used to hold the top and lower sections of the hydrant firmly in line as shown in the illustration. The upper and lower portions of the stem are similarly held firmly in proper position.

In case of an accident, the safety breakable section will be the part to give way. The manufacturers claim that the broken parts can be replaced and the hydrant placed back in service in less than thirty minutes at a total cost for material and labor, of less than ten dollars. The water pressure in the main keeps the inlet valve tightly closed so that there is no danger of flooding.



Two Views of the Kennedy Safetop Fire Hydrant

Upper, how the hydrant reacts from an impact with a truck. The break occurs near the ground line. Lower, the safety breakable section which can be replaced at little cost. This section holds the upper section in rigid position abutting the lower section.

Ideal Apparatus to Meet 1932 Budgets

YOU can save your community hundreds of dollars and still have first class, adequate protection by insisting upon the Barton Fire Pump.

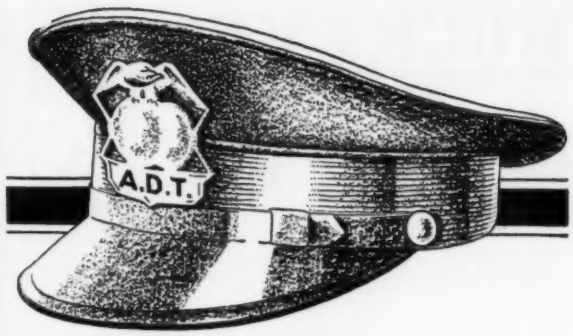
With a Barton Pump no special, high priced fire truck is required. Any standard commercial chassis can be successfully used—and without costly changes, special transmission, etc.

As shown above, the Barton Pump mounts on front. It is driven by the truck motor in a simple, positive manner, involving a patented principle which protects both pump and motor from wear or injury.

Both the U-34, 300-gallon pump and the U-45, 500-gallon pump have passed the Underwriters' 12-hour Tests. Being centrifugal type, they will pump clean or dirty water from city mains or from suction. They are automatically primed.

A Barton Fire Pump gives you the utmost in dependable performance—at much lower cost. Consult your apparatus dealer, or write us for Bulletin 60. AMERICAN STEAM PUMP COMPANY, Battle Creek, Michigan.

BARTON FIRE PUMPS



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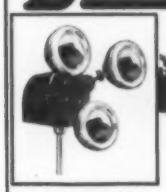

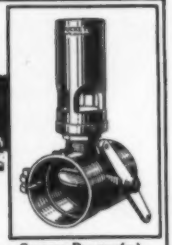

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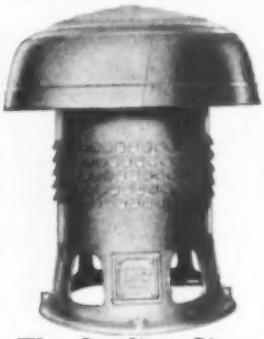

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All the manufacturers you will find represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention FIRE ENGINEERING.

Plans Made for Dominion Chiefs' Convention

Chief James Armstrong, Secretary, Dominion Association of Fire Chiefs, has sent out information concerning the twenty-fourth annual convention of the association which will be held in Halifax, Nova Scotia, July 19-22. The Hotel Nova Scotian has been selected as the convention headquarters. Apparatus will be displayed in the hotel garage, which is in the basement.

President Raoul Gauthier has arranged for the introduction of the following topics for discussion.

"How to Curb Incendiarism in Times of Depression," by Chief Commissioner D. Walsh, Montreal
"Fighting Fires in Small Towns," by Chief J. Miterlla, St Thomas, Ont.
"Training Competent Drivers for Fire Apparatus," by Chief C. W. Thompson, Vancouver
"Fire Prevention Inspections in Private Dwellings," by Chief Inspector Jas. McIsaac, Montreal.
"Fighting Grass Fire in City Suburbs," by Chief R. Dey, Pembroke, Ont.
"Salvage and Conservation of Property at Fires," by Chief D. A. Boulden, Winnipeg, Man
"How to Combat Harbor and Ship Fires," by Chief J. W. Churchill, Halifax, N. S
"Fighting Fires in Apartment Houses," by Chief George Sinclair, Toronto
"Precautions with Gasoline and Oils," by Chief Robt. Harrington, McColl-Frontenac, Montreal.
"Ventilation at Fires," by Chief A. S. Kappelle, Stratford, Ont.
"Forest Fires," by Chief A. O'Donnell, Campbellton, N. B.
"Training Fire Chiefs for the Smaller Places," by Chief Allan H. Clarke, Lakefield, Ont.

Rates at the convention headquarters for a single room are $4-$4.50; at the Lord Nelson Hotel, $3-4; Queen Hotel, $2.50 and up; Halifax Hotel, $2-$2.50, Carleton Hotel, $2.50-$3 and Elmwood Hotel, $1.50. The hotels are from three to fifteen minutes walking distance from the Hotel Nova Scotian.

It is proposed to confine the entertainment to the evening hours with the exception of one afternoon when there will be a boat trip around the harbor.

Chief W. S. Vaughan, St. John, N. B., is Chairman of the Exhibits Committee.

Massachusetts Chiefs to Meet in Worcester

At a meeting of the Fire Chiefs' Club of Massachusetts held at the Hotel Bradford in Boston on April 20, it was voted to hold the May meeting in Worcester. The Chiefs attended the luncheon and Fire Prevention Conference of the Massachusetts Safety Council. Alfred N. Miner, Vice-President of the Safety Council, was Chairman of the conference.

The speakers were Percy Bugbee, Assistant Managing Director of the National Fire Protection Association, whose topic was "Causes of Massachusetts Fires and the Remedy"; Chief Daniel B. Tierney, of Arlington, Mass., on "Preventing the Home Fires"; and Charles W. Mowry, Manager of the Inspection Department, Associated Factory Mutual Fire Insurance Companies, on "Industrial Fire Safety." Other speakers were Chief Selden R. Allen, of Brookline, and Deputy Chief Albert J. Caulfield, of the Fire Prevention Division of the Boston Fire Department.

In the evening many of the Chiefs attended the entertainment given by the Box 52 Association at the Hotel Westminster in Boston.

HARRY BELKNAP.

Standard Marking for Fire Hydrants

Some cities have adopted plans for marking fire hydrants so that it is possible to tell the character of fire stream that particular hydrant is capable of giving. On page 205 of this issue is presented a letter by J. W. Randlette, Water Works Superintendent, Richmond, Me., on the painting of fire hydrants.

At a meeting of the Maine Water Utilities Association held in Portland, Me., March 22, the following resolution was drawn up:

"Whereas, it has been established that great benefit accrues to both the Water Department and Fire Department to have the fire hydrants marked to indicate their capacity and,

"Whereas, we believe that the time has arrived when steps should be taken toward a national uniform marking of fire hydrants and,

"Whereas, this association in 1929 adopted a system for marking hydrants in the State of Maine, therefore be it

"Resolved, that we urge the editorial staff of FIRE ENGINEERING to seek the cooperation of the various Fire Departments to the end that a national code of colors for marking fire hydrants be established"

This resolution was signed by J. W. Graham, General Manager, Portland Water District, A. W. Read, Superintendent, Bangor; Earle A. Tarr, Superintendent, Winthrop; Walter F. Abbott, Superintendent, Bath; S. S. Anthony, Superintendent, Augusta; S. D. Soule, Superintendent, Gardiner and J. W. Randlette, Superintendent, Richmond. These are the members of the association's hydrant markings committee.

The standard adopted follows:

The barrels of the hydrants are painted a chrome yellow for visibility and distinct markings are used for the caps.

Class A. Hydrants which have sufficient supply for one or more pumpers or 1,000 gallons per minute. Tops and nozzle caps green.

Class B. Hydrants which are capable of supplying pumpers with not less 500 gallons per minute. Tops and nozzle caps yellow.

Class C. Hydrants insufficient to supply pumpers of 500 g.p.m. Tops and nozzle caps painted red.

The suggested method of painting is to paint the entire hydrant first with a good metal aluminum paint and then to cover the first coat with the proper colors.

Fire Losses Increase in March

After a period of eight months during which the fire loss for each of the months was less than the corresponding month of the previous year, the fire losses in the United States for March increased 11.6 per cent. According to the monthly report of the National Board of Fire Underwriters, the total is $49,189,124 or an increase of $5,114,762 over the total for March, 1931.

Newly Elected Chiefs

The following have been elected to head the Fire Departments in their respective municipalities:

Carrollton, Ky.—E. S. Lawrence.
Vermontville, Mich.—Vance F. Barber.
Port Deposit, Md.—Walter Strout.
Finley, N. D.—C. A. Christianson.
Lakewood, Ohio—Charles A. Delaney.
Aneta, N. D.—John J Clark.
Middletown, Del.—Harris Berkman.
New Albin, Ia.—Howard Irons.
Portland, N. D.—Haakon Olson.
Lidgerwood, N. D.—William Kocourek.
Defiance, Ohio—George J. Smith.
Otesgo, Mich.—Ira Stevens.
Oradell, N. J.—George McCurdy, Jr.
Williamson, N. Y.—Isaac Colwell.
Beach, N. D.—W. W. Basham.
Winona, Minn.—H. G Putnam.
Hainesport, N. J.—C. B. Wentzell.
Newton Square, Pa.—Sheldon Broadbelt.
Narrows, Va.—S. L. Kingrea.
Arcadia, Wis.—O. W. Schroeder.
Paris, Ill.—Carroll Sizemore.
Wilton, Wis.—George Kuderer
Riverdale, N. J.—W. J. Shenise.
Thorp, Wis.—Joseph Yetski.
St. Michaels, Md.—J. L. Fitzpatrick.
Barnesboro, N. J.—Melvin D. Kirkbride.
Bay Village, Ohio—Clifton Aldrich.
Royersford, Pa.—Abram Clemens.
Coloma, Mich.—William Umphery.
Hilbert, Wis.—Wenzel J. Suttner.
Belair, Md.—A. H. Morris.
Singerly, Md.—Lewis A. Peterson.
Pelham, N. Y—Robert Reilly.
Los Altos, Cal.—Roy Eschonbruecher.
St. Remy, N. Y.—Philip Fischer, Sr.
Malin, Ore.—M. M. Wonder.
Madison, Me.—D. M. Nichols.
Barron, Wis.—Ben Becker.
Nichols, Conn—Sydney R. Stapley.
Mapleton, Ia.—Tony Schuh.
Denton. Mont.—A. C. Thompson.
Boscobel, Wis.—L. S. Shipley.
Belle Plaine, Ia.—E. G. Byers.
Odell, Neb.—W. O. Leeper.
Montrose, Ia.—Henry Halbritter.
Chariton, Ia.—Tom Plows.
Albia, Ia.—Charles Rowe.
St. James, Minn.—C. T. Crowley.
Sac City, Ia.—W. D. Matthews

Gamewell Moves Dallas Office

The Dallas, Texas, office of the Gamewell Company and the Eagle Signal Corporation, has been moved to the Burt Building, Ervay and Patterson Streets, Dallas. These companies manufacture fire alarm and traffic signal systems.

Rhode Island Chiefs' Club Meets

Chief Daniel B. Tierney of Arlington, Mass., read a paper on "Management of a Town Fire Department," at the last meeting of the Fire Chiefs' Club of Rhode Island. He pointed out the value of the mutual aid system which is in effect with cities and towns in eastern Massachusetts. Chief Charlesworth of Providence, President of the Club, advocated that a mutual aid system be established for municipalities around Providence.

Two bills that were sponsored by the club, failed to pass in the legislature. One was to pay the widow of a fireman killed in line of duty, a state pension of $1,000 a year and to each orphan of a deceased fireman, $200 a year. The other was to make it compulsory on the part of towns to appropriate four cents on $100 valuation for fire protection.

On Sunday, May 1, the club accepted the invitation of the Chaplain and attended a special service in the Free Evangelical Congregational Church, Providence.

CONVENTION DATES

May 9-12—NATIONAL FIRE PROTECTION ASSOCIATION. 36th Annual Meeting, Atlantic City, N. J. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

May 11—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. 3rd Annual Convention, Cape Charles, Va. Secretary, W. A. Karpa, Cape Charles, Va.

May 19—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Quarterly Meeting, Morristown, N. J. Secretary, Fred A. Trowbridge, Morristown, N. J.

May 21—KEYSTONE FIRE CHIEFS' ASSOCIATION. Next Meeting, Glenside, Pa. Secretary, John V. Nolan, Malvern, Pa.

May 25—IOWA FIRE CHIEFS' ASSOCIATION. Annual Convention, Ames, Ia Secretary-Treasurer, Chief L. R. Morris, Ames, Ia.

May 24-27—IOWA FIREMEN'S SHORT COURSE. 8th Annual Short Course, Iowa State College, Ames, Ia. Address, Lindon J. Murphy, Municipal Engineer, Engineering Extension Service, State College, Ames, Ia.

May 27-28—EASTERN ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention. DuPont-Biltmore Hotel, Wilmington, Del. Secretary, Chief F. E. Soulé, Coatesville, Pa.

May 27-28—POLICE AND FIRE CHIEFS' CLUB, MONTREAL AND DISTRICT. 6th Annual Fishing Party and Picnic, Lake Morgan, P. Q., Can. Secretary-Treasurer, Robert Harrington, Supt. of Investigation, McColl Frontenac Oil Co., Ltd., Montreal.

June—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 43rd Annual Convention, Beacon, N. Y. (Exact date to be decided later.) Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y.

June—NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 60th Annual Convention, Gibsonburg, Ohio (exact date to be decided later). Secretary, Harry Smith, Supt., Water Works, Port Clinton, Ohio.

June—SOUTHERN CALIFORNIA FIRE CHIEFS' CLUB. Bi-Annual Meeting, Big Bear, Cal. (Exact date to be decided later.) Secretary-Treasurer, Chief Charles E. Smith, Chula Vista, Cal.

June 1-3—OKLAHOMA STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, McAlester, Okla. Secretary-Treasurer, Charles Slemp, 820 East Nineteenth St., Oklahoma City, Okla.

June 5-10—SOUTH DAKOTA FIREMEN'S ASSOCIATION AND FIRE SCHOOL. 48th Annual Convention and 34th Annual Fire School, Rapid City, S. D. Secretary, M. C. Sullivan, Parkston, S. D.

June 7-9—FIRE CHIEFS' ASSOCIATION OF OHIO. 15th Annual Convention, Hamilton Ohio. Secretary-Treasurer, Fire Chief Philip J. Harty, Youngstown Sheet & Tube Co., Youngstown, Ohio.

June 7-9—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. 26th Annual Convention, Statler Hotel, Buffalo, N. Y. Secretary-Treasurer, Chief James H. Golden, Cohoes, N. Y.

June 9-10—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Brunswick, Ga. Secretary, John L. Miller, Concord, N. C.

June 10-11—DELAWARE COUNTY FIREMEN'S ASSOCIATION. 26th Annual Convention, Folcroft, Pa.; Field Day and Outing, Woodside Park, Philadelphia, Pa. Financial Secretary, William E. Wunderlich, Lansdowne, Pa.

June 10-11—NORTHERN INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. 27th Annual Convention, Columbia City, Ind. Secretary-Treasurer, Fred G. Duryea, Fort Wayne, Ind.

June 13-15—FLORIDA FIRE COLLEGE. 3rd Fire College, Daytona Beach, Fla. Address, Florida State Firemen's Association, Fire College Committee, Chief Paul D. Joyce, Chairman, Haines City, Fla.

June 13-15—MINNESOTA STATE FIRE DEPARTMENT ASSOCIATION. 60th Annual Convention, River Falls, Minn. Secretary, Fred. Pfaender, New Ulm, Minn.

June 13-15—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 10th Annual Convention and Fire School, Raton, N. M. Secretary-Treasurer, Theodore A. Rosenwald, Albuquerque, N. M. Fire School under direction of Dean R. S. Rockwood, University of New Mexico.

June 14-15—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. 7th Annual Convention, Hotel Pantland, Grand Rapids, Mich. Secretary, George F. Dansbury, Grosse Pointe Farms, Mich.

June 14-16—STATE FIREMEN'S AND FIRE MARSHALS' ASSOCIATION OF TEXAS. 6th Annual Convention, Austin, Tex. Secretary-Treasurer, Olin Culberson, Edna, Tex.

June 15-17—WISCONSIN STATE FIREMEN'S ASSOCIATION. 45th Annual Convention, Clintonville, Wis. Secretary, E. Philip Mueller, Jeffersonville, Wis.

June 20-23—COLORADO STATE FIREMEN'S ASSOCIATION. 16th Annual Convention, and Fire College, Telluride, Col. Secretary, Clinton Turnbull, 303 Jacobson Bldg., Denver, Col.

June 21-24—ILLINOIS FIRE COLLEGE. 8th Annual College, University of Illinois, Champaign-Urbana, Ill. Director Prof. L. H. Provine; Secretary, Asst. Chief Roy W. Alsip, Fire Department, Champaign, Ill.

June 21-24—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 10th Annual Convention, Newport, R. I. Headquarters, Hotel Viking; Meetings and Exhibits, Casino, Newport Beach, Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.

June 22—CENTRAL WESTERN FIREMEN'S ASSOCIATION. (Ohio). Annual Convention, Piqua, Ohio. Secretary, Roger C O'Donnell, Favorite Theatre Bldg., Covington, Ohio.

June 22-23—INDIANA FIRE CHIEFS' ASSOCIATION. Annual Convention, LaFontaine Hotel, Huntington, Ind. Secretary, Archie McCabe, Muncie, Ind.

June 28-30—ARIZONA STATE FIREMEN S ASSOCIATION. 9th Annual Convention, Prescott, Ariz. Secretary-Treasurer, H. W. Reggin, Prescott.

July—DOMINION ASSOCIATION OF FIRE CHIEFS. 34th Annual Convention, probably the third week of July, Halifax, N. S. (Exact date to be decided later). Secretary, Chief James Armstrong, Kingston, Ont. Chairman, Exhibit Committee, Chief W. S. Vaughan. St. John, N. B.

July 1—TEMISKAMING FIREMEN'S ASSOCIATION. Tournament, July 1; 8th Annual Convention, October 3, Kirkland Lake, Ont., Can. Secretary-Treasurer, F. E. Thompson, New Liskeard, Ont.

July 6-8—MARYLAND STATE FIREMEN'S ASSOCIATION. 40th Annual Convention, Frostburg, Md. Secretary, George R. Lindsay, Hagerstown, Md.

July 11-14—MICHIGAN STATE FIREMEN'S ASSOCIATION. 58th Annual Convention, Monroe, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 19-22—DOMINION ASSOCIATION OF FIRE CHIEFS. 24th Annual Convention, Canadian National Hotel Nova Scotian, Halifax, Nova Scotia. Exhibits, same place. Secretary, Chief James Armstrong, Kingston, Ont. Chairman of Exhibits, Chief W. S. Vaughan, St. John, N. B.

July 25-27—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 10th Annual Convention. San Diego, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Ave., San Diego.

July 25-28—WEST VIRGINIA STATE FIRE CHIEFS' ASSOCIATION. 1st Annual Convention, Morgantown, W. Va. Secretary, Chief C. J. Powell, Romney, W. Va.

July 27-28—CENTRAL NEW YORK FIREMEN'S ASSOCIATION. 39th Annual Convention, Watkins Glen, N. Y. Secretary, Thomas J. Murray, Cortland, N. Y.

Aug.—VERMONT STATE FIREMEN'S ASSOCIATION. 42nd Annual Convention (exact date to be decided later), Bennington, Vt. Secretary-Treasurer, Chief Alfred H. Koltonski, Rutland, Vt.

Aug. 2-4—INDIANA FIREMEN'S ASSOCIATION. 16th Annual Convention, Columbus, Ind. Secretary, Clem Smith, Post Office Box 520, Terre Haute, Ind.

Aug. 8-9—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 8th Annual Convention, St. Louis, Mo. Secretary-Treasurer, M. J. Mulvoy, 3500 So. Grand Boulevard, St. Louis, Mo.

Aug. 8-11—TEXAS FIREMEN'S TRAINING SCHOOL. 3rd Annual School, Texas A. & M. College, College Station, Tex. Director, Prof. H. R. Brayton, Dept. of Chemistry and Chemical Engineering, College.

Aug. 9-11—WISCONSIN PAID FIREMEN'S ASSOCIATION. 25th Annual Convention, Janesville, Wis. Secretary-Treasurer, Asst. Chief William H. Schultz, Sheboygan, Wis.

Aug. 10-12—VIRGINIA STATE FIREMEN'S ASSOCIATION. 46th Annual Convention, and Tournament, Alexandria, Va. Secretary, O. W. Dabney, Staunton, Va.

Aug. 10-12—CUMBERLAND VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 32nd Annual Convention, Alexandria, Va. Secretary, C L. Jacobs, Waynesboro, Pa.

Aug. 19-20—CONNECTICUT STATE FIREMEN'S ASSOCIATION. 49th Annual Convention, Broad Street School Auditorium, Pawcatuck, Conn. Secretary, D. W. Harford, 10 Chestnut Street, So. Norwalk, Conn.

Aug. 19-21—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. 60th Annual Convention, Lake Placid, N. Y. Secretary, Fred A. Davis, Fort Edward, N. Y.

Aug. 22-25—MONTANA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and 2nd Firemen's Short Course, Billings, Mont. Secretary-Treasurer, D. E. Moser, Billings, Mont.

Sept.—SHORT COURSE FOR VOLUNTEER FIREMEN. Next School date not decided upon; probably in September. Director, Dean A. N. Johnson, Engineering College, University of Maryland, College Park, Md.

Sept.—ARKANSAS STATE FIREMEN'S ASSOCIATION. 11th Annual Convention and Fire College, El Dorado, Ark. Secretary-Treasurer, H. D. Compton, Little Rock, Ark.

Sept.—OHIO FIRE SCHOOL. 3rd Annual Fire School, Ohio State University, Columbus, Ohio. (Exact date to be decided later.) Director, Harvey Walker, Dept. of Political Science State University.

Sept. 1-3—WASHINGTON STATE FIREMEN'S ASSOCIATION. 10th Annual Convention, and Fire College, Yakima, Wash. Secretary, H. S. Jenkins, Bellingham, Wash.

Sept. 6-8—KENTUCKY FIREMEN'S ASSOCIATION. 13th Annual Convention, Corbin, Ky. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Sept. 6-8—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention Springfield, Mass. Secretary, Daniel J. Looney, 448 Old South Bldg., Boston, Mass.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 45th Annual Convention, Orlando Hotel, Decatur, Ill. Secretary, Asst. Chief Roy W. Alsip, Fire Department, Champaign, Ill.

Sept. 14-15—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. 4th Annual Convention, Appleton, Wis. Secretary, Chief Arthur J. Rahn, Two Rivers, Wis.

Sept. 16-17—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 55th Annual Convention, Atlantic City, N. J. Secretary, William Exall, 602 Chamber of Commerce Bldg., Newark, N. J.

Sept. 21-22—NEW CASTLE COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Wilmington, Del.

Sept. 21-22—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 12th Annual Convention, Wilmington, Del. Secretary, Sam H. Carson, Dover, Del.

Oct. 4-6—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 53rd Annual Convention, Lancaster, Pa. Secretary, Charles E. Clark, Wayne, Pa.

Oct. 18-20—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 50th Annual Convention, Falls City, Neb. Secretary-Treasurer, Fred. W. Muller, Norfolk, Neb.

Oct. 18-21—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 60th Annual Convention, San Diego, Cal. Convention Headquarters, U. S. Grant Hotel; Meeting and Exhibits, San Diego Municipal Pier. Secretary-Treasurer, Ex-Chief James J. Mulcahey, 16 Franklin Avenue, Yonkers, N. Y.; Executive Secretary, Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief W. S. Minter, Long Beach, Cal.

Oct. 18-21—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual Convention during Convention of International Association of Fire Chiefs, San Diego, Cal. (Exact date not set.) Secretary-Treasurer, Chief Ray Tiller, Waterloo, Ia.

Oct. 10-12—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, to be held at Houston, Tex. Secretary-Treasurer, J. F. Taplin, Blackwell, Okla.

The PRACTICAL *Extinguisher!*

"Ranger-Special"

WATER BAG

JUST the thing for suburban and forest fire service. A durable, comfortable, leakproof, fabric bag that carries over 5 gallons of water. Fitted with efficient hand pump that throws a 70- to 80-foot stream easily. Carried flat, it occupies 1/5 the space of same size metal container.

This new and more practical extinguisher never gets out of order. It can be filled and carried ready for instant use. It will not leak, sweat or splash. Can be filled instantly from any source. Complete information and prices on application.

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Reliable wide awake men wanted to demonstrate this new and better equipment of many uses. Write for proposition.

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NEWARK, N. J.

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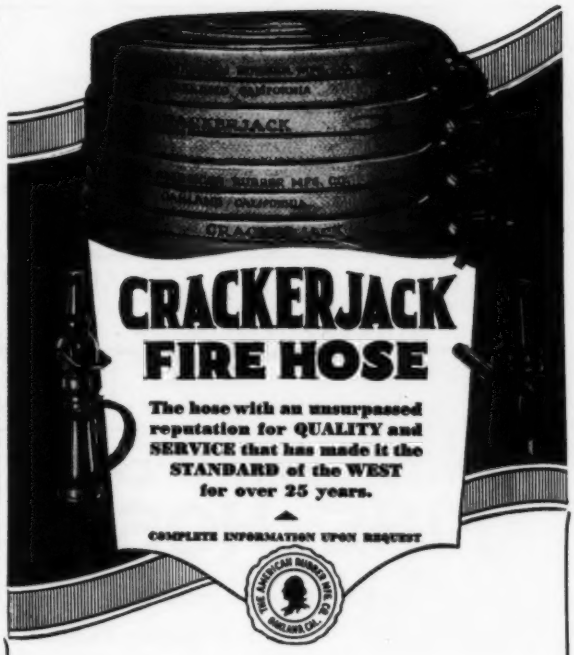
WAJAX PORTABLE FOREST FIRE PUMP AND EQUIPMENT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FIRE HOSE
The hose with an unsurpassed reputation for QUALITY and SERVICE that has made it the STANDARD of the WEST for over 25 years.
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AMERICAN RUBBER MFG. CO.

FACTORY AND GENERAL SALES OFFICES

OAKLAND, CALIF.

R. J. (Dick) Graves, General Sales Mgr.

Reduce WATER DAMAGE & INSURANCE RATES *with*

Shuredry SALVAGE COVERS

"Back in May of last year, after having heard so much about salvage work by the fire department, and after having given considerable thought to the fact that three times as much damage is done at fires by water as by flames, I decided to introduce salvage work in my department, and immediately purchased several of your No. 2 SHUREDRY GREEN-BAK salvage covers, size 12' x 18'.

"Since that time, we have saved from water damage thousands of dollars worth of valuable merchandise and household effects for the citizens of Johnson City, and I am so thoroughly sold on salvaging work today, and on your SHUREDRY salvage covers, that I would not sell the covers now for $100.00 apiece if I could not buy more to replace them. What I want to do is to add more covers and save more goods from water damage, because this will enable me to make a better showing at the end of the year by reducing my annual fire-loss report.

"I cannot too strongly recommend salvage work and SHUREDRY salvage covers to the other fire chiefs of this country."

Chief, Johnson City, Tenn. Fire Dept.

75% of the nation's annual half-billion-dollar fire loss is traceable to Water Damage. Send for Shuredry samples today.

Fulton Bag & Cotton Mills

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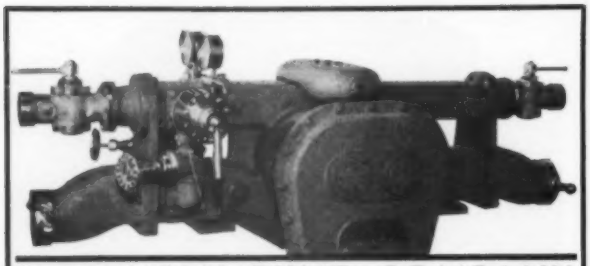

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ESTABLISHED 1907
MINNEAPOLIS, MINN.

The FINEST LARGE NOZZLES and DECK GUNS are "Made by MORSE"

Practically every well known Fire Boat in service in this country today is equipped with MORSE "Invincible" Nozzles, many pieces of fire apparatus are also equipped with these exceptionally fine nozzles. They are the result of nearly a hundred years of experience in producing nozzles that are a lot better than the general run of fire nozzles.

ANDREW J. MORSE & SON, INC.
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HEWITT-GUTTA PERCHA
FIRE HOSE

A complete line, including
Wax Treated - Solid Multiple Woven
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Single and Double Jacket Hose

Manufactured by
HEWITT - GUTTA PERCHA
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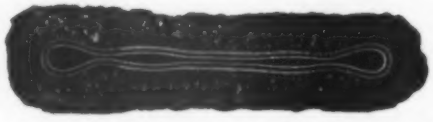
"Territories Available"

TRIPLE COMBINATION 3 TONE
FEDERAL WHISTLE

A low pressure triple combination air whistle that will operate off of any existing fire alarm system. It has no equal for tone volume. No moving parts—nothing to get out of order. Guaranteed for 10,000 hours of continuous blowing. Get complete details and attractive price by writing for Bulletin 38.

FEDERAL ELECTRIC COMPANY
8702 South State Street, Chicago, Illinois

Bi-Lateral Fire Hose



The one hose that does not require frequent replacements. Always reliable for fire service no matter how old, if the jackets are intact.
Lined with three rubber tubes, specifically guaranteed for six years.

BI-LATERAL FIRE HOSE CO.
15 Park Row, New York, N. Y.
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COMFORT AND SECURITY
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CAIRNS
LATEST LOW HEAD
CUSHION LINED
HELMET

COMFORTABLE AS YOUR OLD FELT HAT; WON'T SHAKE OFF

Never go to a fire without the protection of a good helmet. It may save your life.

Send for your copy of Catalog No. 227, showing this latest improvement.

CAIRNS & BROTHER
72 GRAND STREET Established 1836 NEW YORK

Saves time - *and costly hose*

No. 1. (Capacity 3 to 7 tons; weight, each, 72 lbs.)
No. 2. (Capacity 3 to 12 tons; weight, each, 118 lbs.)

Complete Information and Prices on request.

It's often necessary to move apparatus at a fire. Automobile traffic hates to be held up by a line of hose stretched across the right of way.
Why ruin your hose by driving over it? Or waste valuable time cutting off and disconnecting?
The Wausau Protector is a big time and money saver—easy to handle and carry. Order a set today, or write us for particulars.

Wausau Fire Hose Protector Co.
1520 Harmon Place, Minneapolis, Minn.

Quick Acting Reliable

Anderson-Hale Improved

FIRE STATION DOOR OPENERS

Over 1,300 sets of Anderson-Hale Fire Station Door Openers are in successful use. They provide simple, durable, quick-acting doors that open inward. No obstruction to sidewalk. Attractive in appearance, cannot sag, closes tight, excludes cold, gives clear opening. Opens from driver's seat or from floor. Many repeat orders from users.

Write for complete information.

The Anderson Coupling & Fire Supply Co.
Mfrs. Motor Fire Equipment and Fire Supplies
Kansas City, Kansas

New Jersey Chiefs to Meet in Morristown

The quarterly meeting of the New Jersey State Fire Chiefs' Association will be held in Morristown, N. J., May 19. T. Alfred Fleming of the National Board of Fire Underwriters, New York City, will be the principal speaker.

Eastern Fire Chiefs to Meet in May

A meeting of the Board of Officers of the Eastern Association of Fire Chiefs was held at the Pennsylvania Hotel, New York City, on February 11 to make plans for the fifth annual convention which will be held at the DuPont-Biltmore Hotel, Wilmington, Del., May 27 and 28.

The following were present at the Board meeting: Chief Charles W. Greenfield, Arlington, N. J., President; Chief Ross B. Davis, Philadelphia, First Vice-President; Deputy Chief John J. T. Waldron, New York Fire Department, Second Vice-President; Ex-Chief John Kenlon, New York City, Chairman of the Board of Directors; Chief William J. Lutz, Wilmington, Del.; Chief Harry Francis, New Brunswick, N. J.; Chief R. L. Smith, Pittsburgh, Pa., Treasurer, and F. E. Soulé, Fire Marshal, Coatesville, Pa., Secretary.

Sterling Siren Secretary and Wife Dead

Frederick C. Buckley, Secretary and Treasurer of the Sterling Siren Fire Alarm Company, Rochester, N. Y., and his wife were found dead in Mr. Buckley's office on Saturday, April 16.

They had just returned from a week in New York City where a nineteen-year old son is studying dramatics. Many letters had accumulated during Mr. Buckley's absence and he decided to work Friday evening to answer his correspondence. Mrs. Buckley remained with him. After having dinner they returned to the office at eight o'clock. They were still working at 9:45 p.m. according to the last eyewitness.

When the office was opened on Saturday morning, the couple were found dead, and there was a strong odor of gas. It is believed that the gas heater was lit to take out the chill in the small completely enclosed office, and that there was a leak in the gas pipe. The couple were overcome by the gas fumes within a short time. Mr. Buckley was forty-eight years old.

The business of the Sterling Siren Fire Alarm Company will be carried on with practically the same personnel as before.

Chief Emil Carlson of Tacoma Resigns

Emil Carlson, Chief of the Seattle, Wash , Fire Department for sixteen years and a member of the force for thirty-eight years, retired on May 1.

Back in the early eighties, he was a member of the crew of a Swedish windjammer. Tired of the sea, he decided that Tacoma was as good a place as any to take up a landlubber's life. That was in 1888. Six years later, then a bricklayer, he was accepted as a member of the Fire Department. In 1916 he was made head of the fire-fighting force.

In his letter of resignation he wrote:

"I have reached the time when I must take my hat off to Father Time, believing it expedient to lay down the tools of active fire-fighting after thirty-eight years of service, and shift the responsibility to younger hands."

Directors of New England Chiefs Meet

A meeting of the officers and Board of Directors of the New England Association of Fire Chiefs was held in the Hotel Bradford in Boston on April 20.

The attendance was composed of Chief Joseph S. Lawton, Newport, R. I., President; Chief John W. O'Hearn, Watertown, Mass., Secretary-Treasurer; Chief James W. Barker, Middletown, R. I., of the Exhibit Committee; Chief James M. Casey, Cambridge, Mass.; Chief John S. Pachl, Annex Fire Dept., New Haven, Conn.; Chief Alfred H. Koltonski, Rutland, Vt.; Harry Belknap, Boston, Press Representative; George W. Austin, P. Hildreth Parker, and Herbert K. Pratt, Committee on Registration and Reservations.

The deaths were reported of Chief Andrew T. Doran, of Greenfield, Mass.; Ex-Chief Chester H. Blethen, of Auburn, Me.; and William H. Lewis, of Worcester, Mass., representative of the Fabric Fire Hose Company and member of the Box 4 Associates, of Worcester.

Chief Oliver T. Sanborn, of Portland, Me., was appointed Chairman of the Maine Committee on Standardization of Hose Thread Couplings.

Convention plans were discussed and it was announced that one day will be devoted to problems connected with the prevention and control of forest fires. The convention will be held June 21-24 in Newport, R. I., with headquarters at the Hotel Viking, and exhibits and meetings at Newport Beach.

HARRY BELKNAP.

Ex-Chief Mantor With Fabric Fire Hose

George M. Mantor, formerly Chief of the Seattle, Wash., Fire Department, is now representing the Fabric Fire Hose Company, associated with Captain A. A. Paysse in the Washington and Idaho territory. His headquarters is 406 Fourth Avenue, Seattle, Wash. He is affiliated with the Pacific Coast General Office at Oakland, Cal., in charge of L. J. Cosgrove, Branch Manager.

George M. Mantor

Mr. Mantor resigned as Chief of the Seattle Fire Department in February, 1931, after serving as head for ten years. He served as Chief longer than any of his predecessors.

When he resigned, Chief Mantor gave ill health as his reason for the move. He was retired with a pension of $3,000, one-half of his regular salary.

A Correction

In an item appearing on page 167 of our April issue, statement was made to the effect that Chief Mortimer W. Smith of Fort Scott, Kansas, has been offered the position of Chief in the Kansas City, Kansas, Fire Department in recent years. Investigation reveals the fact that it was not Kansas City which offered Chief Smith the position of Fire Chief, but instead, one of the other large cities in the state. Chief Olander Lind, the present Chief of the Kansas City Department, has been connected with the department for 36 years, and all appointments or promotions in the Kansas City Department are made under State Civil Service Law.

Announce New Model Extinguishers

Two new and improved types of fire extinguishers have just been announced by the American-LaFrance and Foamite Corporation of Elmira, N. Y. The new models are known as the Foamite Crusader and the "Childs" Model DS. Both are of the 2½-gallon size.

The principal improvement is the "Monotype" construction. The entire dome and shell is drawn from a single sheet of special alloy which the manufacturer claims is stronger and of higher ductility than copper and has special corrosion-resisting qualities. There is no side seam, no dome seam—in fact, all riveted seams are eliminated.

Recommendations that Peekskill, N. Y., take immediate steps to establish a new fire alarm system, were made by Ex-Chief D. Wiley Travis, Jr., at the annual banquet of department.

James T. O'Donnell, Chief of the Underwriters Salvage Corps., St. Louis, Mo., has issued his fifty-seventh annual report. The Executive Committee, in a foreward, said, "Under the capable supervision of Chief T. O'Donnell, the usual high degree of efficiency has been maintained throughout the year."

Oliver I. Hatfield, Chief of Pottstown, Pa., was stricken with a heart attack while vistiing a ladder company and died two hours later. He was fifty-two years old, and was serving his third term as Chief. He was a member of the Firemen's Association of Pennsylvania, the Keystone Fire Chiefs' Association and the Montgomery County Firemen's Association.

POSITIONS WANTED

These advertisements are inserted without charge as a service offered by FIRE ENGINEERING to everyone in the fire field. Use it.

Fire Chief

Have had five years experience and capable of handling a small town department. 26 years of age and married. Willing to go anywhere. Very best of references can be furnished. Address: Box 625, c/o FIRE ENGINEERING, 24 W. 40th St., New York City.
May

Fire Chief

Former Battalion Chief and Drill Master recently connected with large City Fire Department position of some kind. Has over 10 years service and has seen actual service in over 8,000 fires. Thirty years of age. References sent on request. Address: Box 635, c/o FIRE ENGINEERING, 24 West 40th st., New York City.
M

PROPOSED IMPROVEMENTS

Hempstead, N. Y.—Reports state new fire station to be erected in South Hempstead to replace structure recently destroyed by fire. Estimated cost $16,000.

Fall River, Mass.—Reports state the modernizing of some of the fire apparatus was recommended after recent survey.

Wilmington, Cal.—Reports state Chamber of Commerce passed motion urging that city get an appropriation in next budget for additional fire alarm boxes.

Fairfax, Va.—Construction of a new fire station and purchase of a 1½-ton chemical truck has been authorized by fire department, according to reports. Allan H. Williams, Chief.

Tuckerton, N. J.—City calling for bids for erection of new fire station for Tuckerton Vol. Fire Co.

Oswegatchie, N. Y.—Reports state the purchase of additional fire apparatus was discussed at recent meeting of the Oswegatchie Fire Co.

Dealer Opportunity

Do you need more money? Substantial commissions paid to men who can close orders for a necessary piece of fire equipment. Territories available. Write now in absolute confidence. Address Box No. 515, c/o FIRE ENGINEERING, 24 West 40th St., New York City.

Graves Reports Good Business

R. J. (Dick) Graves, General Sales Manager, of the American Rubber Manufacturing Company, recently completed a circuit of the country, from Oakland, California, through the middle and northern states to the Atlantic seaboard, and returning by the Southern states to Oakland. During the trip he had opportunity to call on many of his fire hose customers.

He reported a better year in 1931 than in 1930, with promises of a still better one this year. Last year was the banner year of the American Rubber Manufacturing Company in its fire hose lines.

Mr. Graves is working with western manufacturers and fire chiefs to make this year's Convention of the International Association of Fire Chiefs at San Diego, a record breaker. He found, in his trip, unusual interest in this year's meeting and predicts a large attendance from the east as well as from the west.

F. A. Murray Appointed Chief of Teaneck

F. A. Murray, who for the past five years has been travelling from town to town training Fire Department members in small municipalities, has been engaged by the Township of Teaneck, N. J., as paid Chief.

He had completed his short course of training in Teaneck and had moved on to Leonia nearby. About that time, a group of nearly one hundred firemen presented a petition to the Town Council advocating that Mr. Murray be retained as head of the department; he was thereupon appointed.

Teaneck is considered one of the most beautiful communities in Bergen County and is growing rapidly. The present population is about 15,000, mainly residential, and is very much a commuters' town. The department has ten paid men. Since Chief Murray has taken charge, a Captain and two Lieutenants have been added. Teaneck is under the City Manager form of government.

Chief Murray has already made some improvements, and others, including salvage work, are planned.

WM. PAUL BABCOCK.

FIRE CHIEFS EMERGENCY PLAN, OF WESTCHESTER, TO BE INCORPORATED

Decide This at Regular Meeting, at Which Plans for Secret Code Word for Chiefs in Emergency Calls Is Adopted

THE members of the Fire Chiefs' Emergency Plan of Westchester County, N. Y., took steps to incorporate their organization at the regular meeting held at the Weaver Street Fire House of the Mamaroneck Township Fire Department, on Wednesday evening, April 20. It was decided to put the matter in the hands of Assemblyman Ralph Gamble for action.

The Plan was welcomed by Chief Howe, of the local Fire Department. There was considerable discussion on the proposed plan of adopting a secret code word to be used when asking for assistance from neighboring departments in case of a bad fire, the word to be known to the Chief alone, or to some one delegated by him for the purpose. It was decided that the word chosen by the Committee would be transmitted to the Secretary, who would see that the Chiefs received it.

The Secretary was instructed to invite Chief Chris Knoll, Poughkeepsie, N. Y., to attend the May meeting, to tell the Plan something of the new Chiefs' organization of a similar nature in his section of Dutchess County, N. Y., with a view to the exchange of ideas of mutual advantage.

The details for the annual meeting and dinner in May were left to the Entertainment Committee, of which Chief Steuhl, Eastchester, nominee for Chairman of the Plan, is the head.

Captain Cashman, of the New York Fire Patrol, who is to give a talk on Salvage at the June meeting, was introduced and made a short address.

Attorney Sneller was requested to make a report at the next meeting as to all laws passed by the New York State Legislature for the good of paid and volunteer firemen.

A short address on carbon dioxide extinguishers was made by Joseph Leerburger, of Walter Kidde & Co. There was a good attendance at the meeting. Refreshments were served after the session, through the courtesy of the Mamaroneck Township Fire Department.

L. P. Mehringer, for the past ten years Fire Chief of Jasper, Ind., died of chronic nephritis at the age of fifty-nine. He had been in failing health for over a year.

Statement of Ownership

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, of FIRE ENGINEERING, published monthly at New York, New York, April 1, 1932.

State of New York, County of New York, s.s.:

Before me, a Notary Public in and for the state and county aforesaid, personally appeared I. H. Case, who, having been duly sworn according to law, deposes and says that he is the Business Manager of FIRE ENGINEERING and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of Congress of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

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Editor—Fred Shepperd, 24 West 40th Street, New York City.

Managing Editor—Fred Shepperd, 24 West 40th Street, New York City.

Business Manager—I. H. Case, 24 West 40th Street, New York City.

2. That the owners are:

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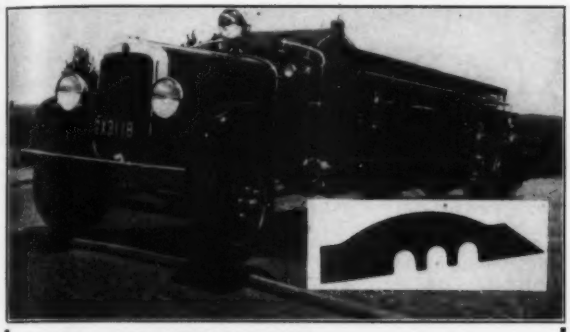
I. H. CASE.
Business Manager

Sworn to and subscribed before me this 25th day of March, 1932.
(Seal) ELLEN E. DUNCANSON.
(My commission expires March 30, 1932.)



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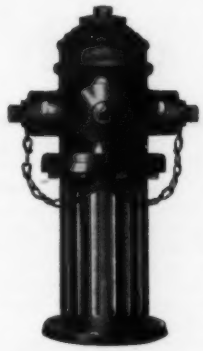

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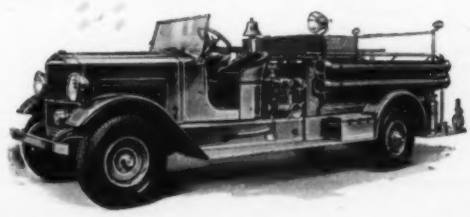

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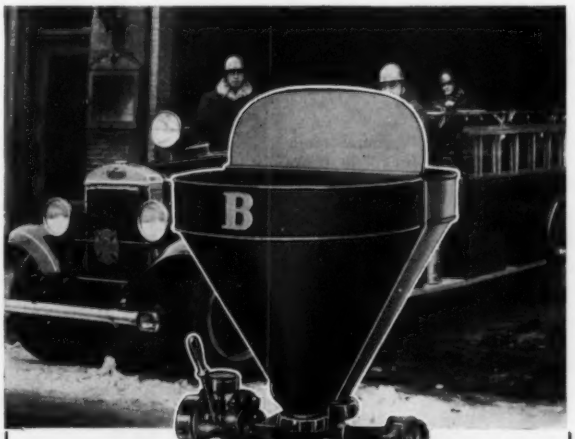

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FALSE ALARMS

SERVICES NOT WANTED

A new policeman had been assigned to duty in the Hilltop area. His mind was still full of the department regulations that he was forced to memorize and it would even be proper to accuse him of knowing where all the punctuations were placed in his rule book.

When he saw the apparatus roll down the street and then stop in his district, he rushed to the spot to help keep the crowds back.

A few moments later he had a hard time keeping back a young fellow who wanted to rush through the line.

"But you can't come in here," said the policeman.

"But I've been sent to do this fire," answered the reporter.

"Too late," replied the officer. "The fire's been started."

A husband is all that is left of a sweetheart after the nerve has been removed.

WRONG FILE

Jerry had borrowed ten dollars from his friend until the next department pay day. However, he did not pay when promised, and his friend thought he would approach the matter diplomatically.

"You certainly must have a wonderful head, Jerry, to keep all those facts that they tell you down to the promotion school."

"Yes," said Jerry, "I never forget anything when it is once in my head."

His friend continued, "Well, old fellow, how about that ten dollars I lent you some time ago?"

"Of course, that's different," said Jerry. "I put that in my pocket."

According to etiquette rules, the proper time to take a lady's arm is in assisting her up from underneath the table.

THE REMAINS

Olsen had a job as janitor at the repair shops. An old crony, who was not very much respected, would come in after hours for a chat. This evening he found Olsen busy.

"What are you doing, sweeping out the shop?" remarked the visitor.

"No I ain't," answered Olsen. "I'm sweeping out the dirt and I'm leaving the shop."

A rural correspondent must have been unduly excited as the result of a fire at the ice plant. He wrote, "six tons of ice were reduced to ashes."

EMPTY!

At the state convention, after the afternoon session was over, a group of firemen walked down the street looking for excitement. They noticed a scale outside of a drug store and induced their extra-heavy friend to get weighed. The coaxing attracted two little boys.

The scale, however, was broken, so that when the heavyweight stepped on the platform, the register pointed to seventy.

One little boy was overcome with amazement.

"Good gravy," he remarked. "The man's hollow."

NEWS ODDITY

An Ohio newspaper writes, "A Hamilton, Ohio, negro erected a combination barbecue, soft drink and shoe shining stand and then sought the approval of those who were in charge of fire regulations. To get in touch with those in authority, he walked to the nearest fire alarm box and twisted the handle. Two fire companies, the Chief and the Marshal were there in two minutes. The permit was not granted."

Then there's the fellow who flunked his road test, because he forgot to stick his hand out—with a five-dollar bill in it.

VERY ACCOMMODATING

A volunteer fireman from way up in the country, was visiting the big city. Walking along a city street, he stopped at a fire house. The door was open and he looked in. A man was seated at a desk near the front entrance. As one fire-fighter to another, the visitor asked:

"D'ye have many fires in town?"

"Yes, we have them pretty often," replied the paid fireman.

"Ever try to see how quick you can get out?"

"Oh, yes," was the answer.

At that moment an alarm was sounded. At the first stroke of the gong, the men rushed to their posts, the doors of the station opened and within a few seconds, men and engine were speeding down the street.

The visitor watched the proceedings with great admiration.

"Well," he remarked, "there ain't many places where they'd go to all that trouble to show a stranger what they can do!"

When your creditors come knocking at the door, be nonchalant; light out.

POOR AIM

During the hunting season, one department had its annual camp fire dinner. The food was usually provided by members who were lucky with their guns.

Two newcomers were added to the party that went in the woods that year. They were green but most zealous.

During the night there was a strange noise. One said to the other:

"Bet you your tin of tobacco I get that howler."

Out he went into the darkness. An hour later he came back dragging a dead wolf.

The loser passed over his tin of tobacco.

Before dawn there was another howl which awoke both men.

"Give me back that tobacco," said the loser. "You killed the wrong one."

YES MA'M! FIREMEN CREDIT ME WITH SAVING 18000 LIVES I CARRIED EACH ONE ON MY BACK!
AND WERE THEY TRYING TO "FLEA" THE FLAMES?
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—Drawing by "Art" Eshey

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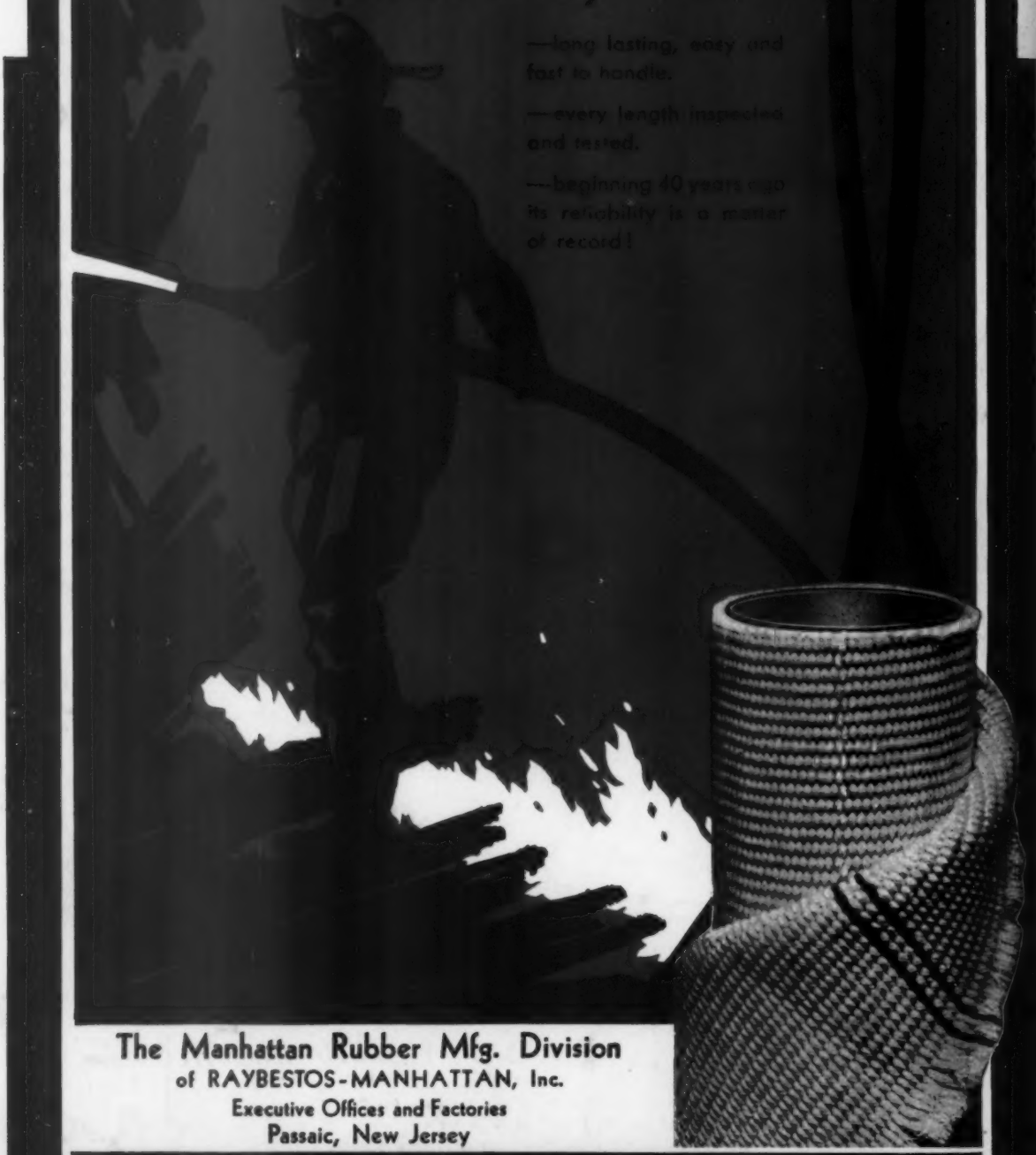

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